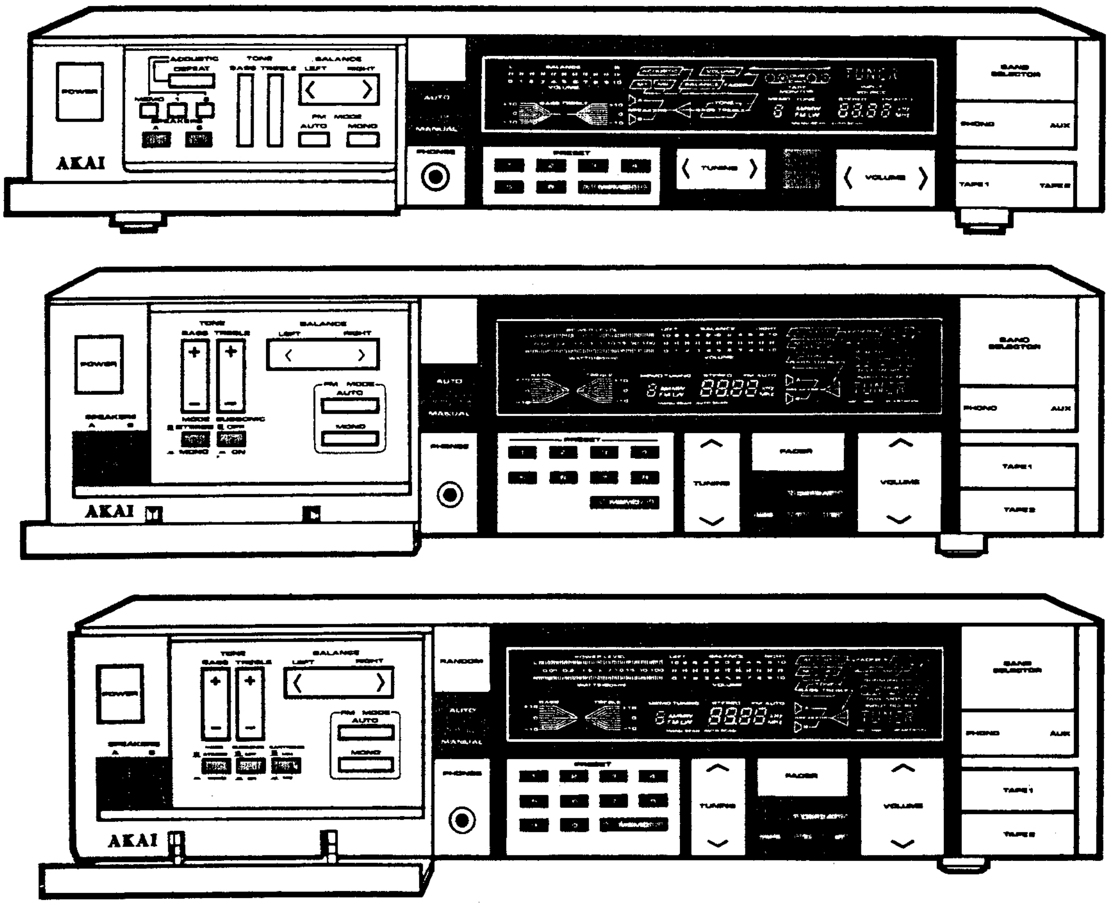
AKAI SERVICE MANUAL

AA-R22/L

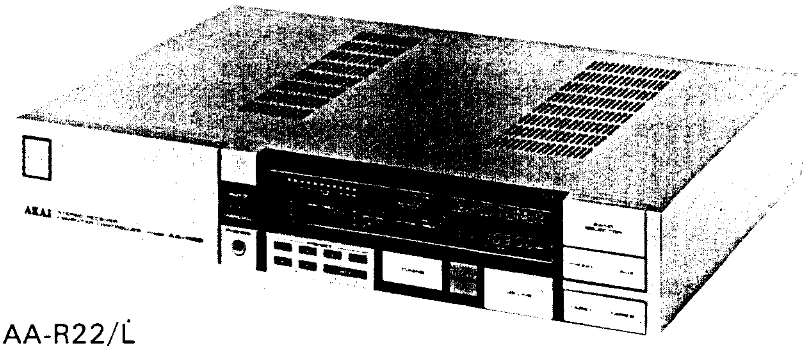

POWER
ACOUSTIC
DEFEAT
TONE
BASS
TREBLE
BALANCE
LEFT
RIGHT
MEMO
SPEAKERS
A
B
FM MODE
AUTO
MONO
AKAI
AUTO
MANUAL
PHONES
PRESET
TUNING
VOLUME
BAND SELECTOR
PHONO
AUX
TAPE 1
TAPE 2
RANDOM
FADER
MEMORY

STEREO RECEIVER

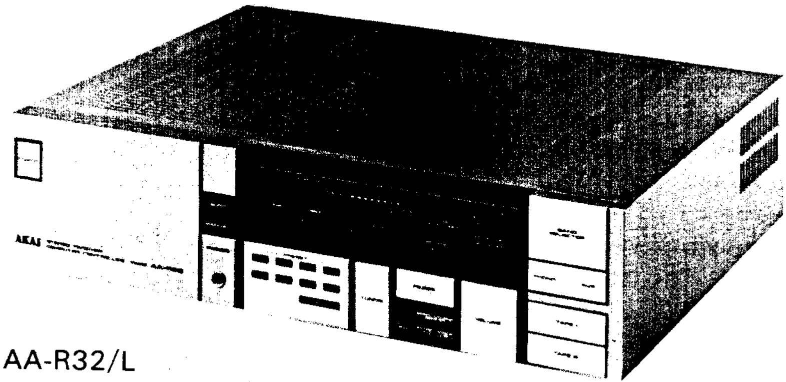
MODEL AA-R22/L
MODEL AA-R32/L
MODEL AA-R42

ABBREVIATIONS FOR SERVICE MANUAL MODEL AA-R22/L, AA-R32/L, AA-R42

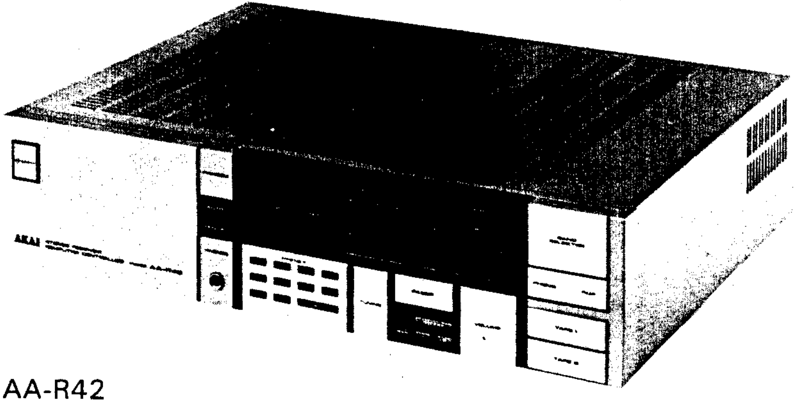
ABBREVIATION	EXPLANATION
A-SW	Analogue SWitch
CK	ClocK
C-MOS	Complementary Metal Oxide Semi-conductor
CPU	Central Processor Unit
f_L	Local oscillator Frequency divided by PLL factor
FLD	Fluorescent Display
f_R	Reference Frequency divided by PLL factor
GND	GrouND
H	High (referring to voltages)
INT	INTerrupt (terminal)
L	Left
L	Low (referring to voltages)
LD	Lock out Detection terminal
LPF	Low Pass Filter
LSB	Least Significant Bit
MSB	Most Significant Bit
NC	Not Connected
PIN	Programmable counter INput terminal
PLL	Phase Lock Loop
POUT	Programmable counter OUTput terminal
R	Right
ST	STrobe
SW	SWitch
SEG	SEGment
VCO	Voltage Controlled Oscillator
XT	Crystal controlled connection Terminal



AA-R22/L



AA-R32/L



AA-R42

STEREO RECEIVER

MODEL AA-R22/L
MODEL AA-R32/L
MODEL AA-R42

THIS MANUAL IS APPLICABLE TO BOTH SILVER
AND PEARL SHADOW PANEL MODELS

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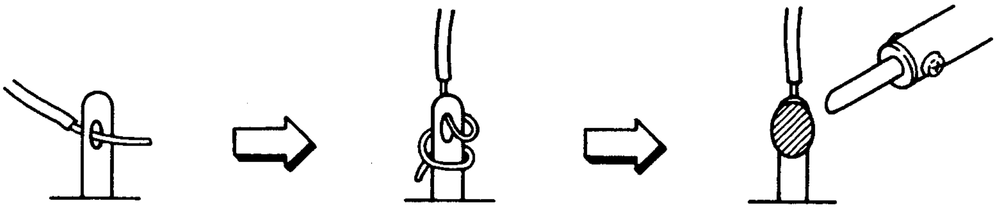
SAFETY INSTRUCTIONS

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks. line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SECTION 1

CIRCUIT OPERATION DESCRIPTION

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I. OUTLINE OF AA-R SERIES SYSTEM

The AA-R series contains two chips, a micro-computer (AA-100) for the amplifier section and a micro-computer (AT-600) for the tuner section. They control the system operations. All controls such as input select, volume, tone control, tuner, etc. which have been done mechanically so far are now done electronically.

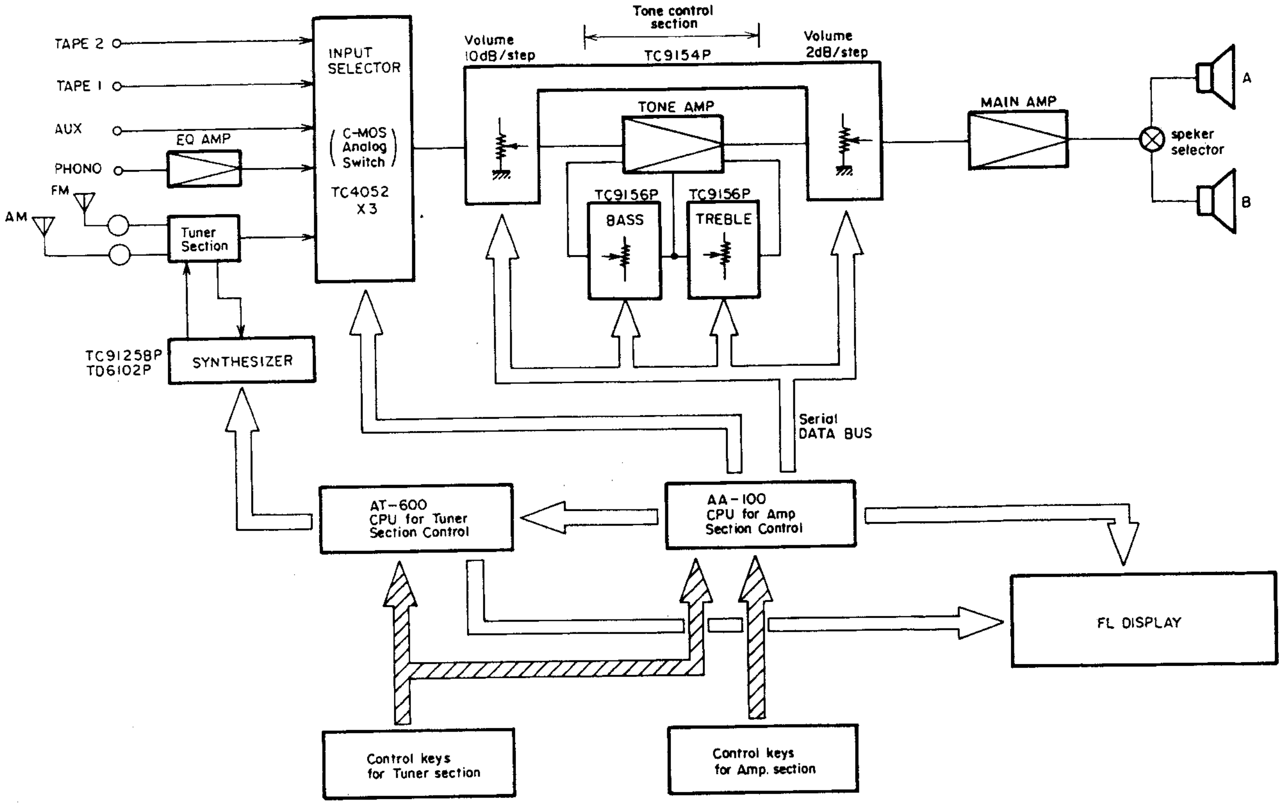

TAPE 2
TAPE 1
AUX
PHONO
EQ AMP
FM
AM
Tuner Section
TC9125BP
TD6102P
SYNTHESIZER
INPUT SELECTOR
C-MOS Analog Switch
TC4052 X3
Volume 10dB/step
Tone control section
TC9154P
Volume 2dB/step
TONE AMP
TC9156P
BASS
TC9156P
TREBLE
MAIN AMP
speker selector
A
B
Serial DATA BUS
AT-600 CPU for Tuner Section Control
AA-100 CPU for Amp Section Control
FL DISPLAY
Control keys for Tuner section
Control keys for Amp. section

Fig. 1-1 AA-R Series System Block Diagram

1. ACCEPTANCE OF INPUT SELECTOR DATA

The amplifier section input selection is in charge of AA-100 and the tuner section input selector is in charge of AT-600, but the band selector also acts as a function selector for input signal switching, and is in charge of AA-100 which controls AT-600 in order to stop all the operations of the tuner section for functions other than tuner and to extinguish the display.

2. FL DISPLAY

The amplifier-related display and the tuner-related display consist of dynamic lighting of duty 1/6 provided by AA-100 and AT-600 respectively.

3. SELECTION OF INPUT SIGNAL

In accordance with the buttons, PHONO, BAND, AUX, TAPE 1 and TAPE 2, AA-100 controls the C-MOS analog switch (TC4052x3) to select the appropriate analog signal.

4. VOLUME CONTROL

AA-100 transfers serially the level data corresponding to the UP or DOWN action to the volume IC to change the volume level.

5. TONE CONTROL

AA-100 transfers serially the data corresponding to the + or – action of the BASS and TREBLE to the bass or treble IC to change the step.

Since the serial data include the data for chip selection, the data transfer bus to the volume IC, bass IC or treble IC uses in common 3 bus bars, DATA, CLOCK and STROB.

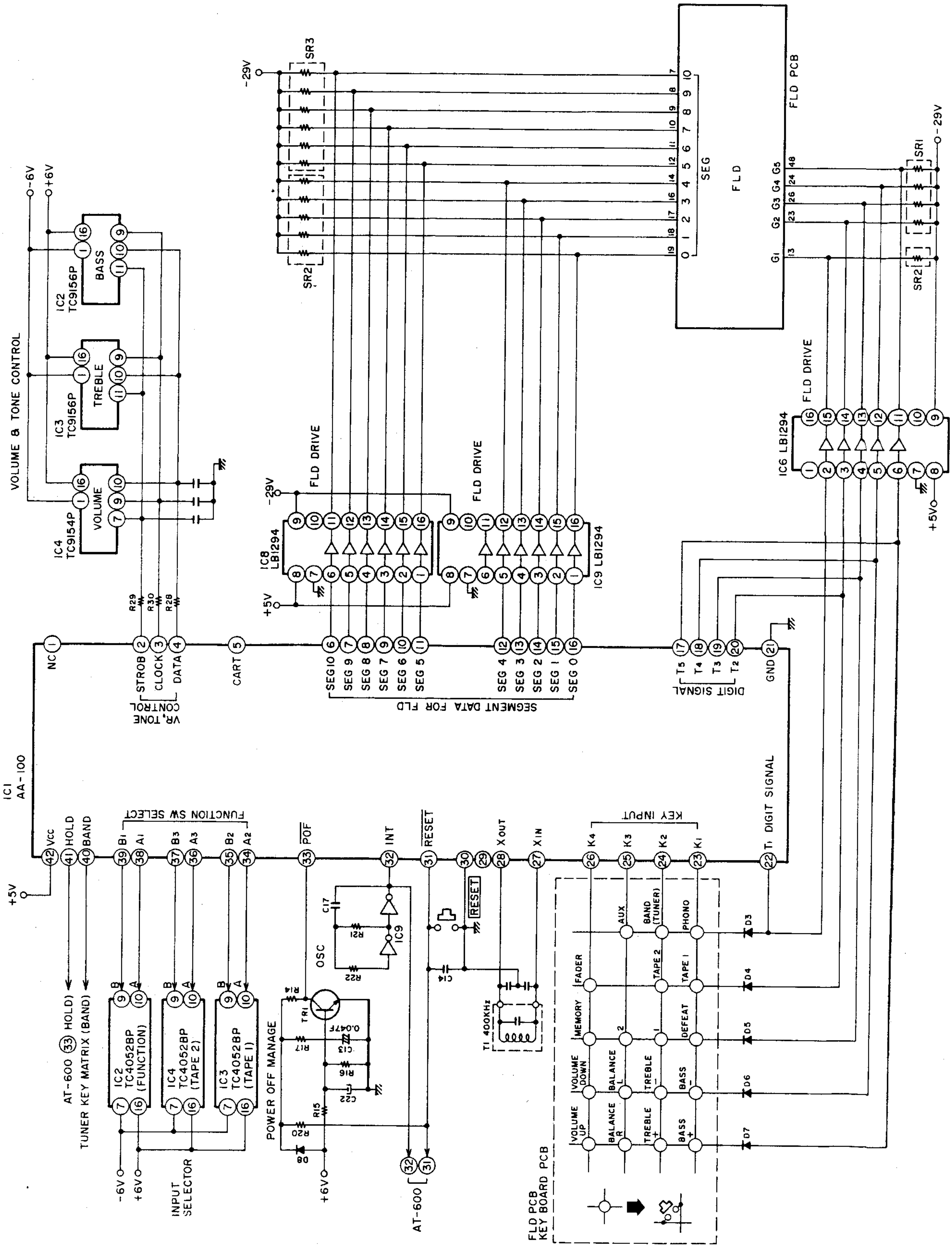
6. LONG-TERM BACK-UP BY CAPACITOR

AA-100 and AT-600, micro-computers for C MOS processing, have very low current consumption in hold mode, thus enabling long-term back-up by a capacitor to be realized.

This provides the last-setting memory which maintains the prior status when the power is OFF. However the volume position will be reset at –26 dB in order to protect the speaker, even if the power went off at a volume level higher than the prescribed level of –26 dB.

II. OPERATION OF AMPLIFIER SECTION CONTROL IC AA-100 PERIPHERAL CIRCUIT

1. AA-100 PERIPHERAL BLOCK DIAGRAM



VOLUME & TONE CONTROL
IC2 TC9156P BASS
IC3 TC9156P TREBLE
IC4 TC9154P VOLUME
-6V
+6V
R29
R30
R28
IC1 AA-100
NC
STROB
CLOCK
DATA
VR, TONE CONTROL
CART
SEG10
SEG 9
SEG 8
SEG 7
SEG 6
SEG 5
SEG 4
SEG 3
SEG 2
SEG 1
SEG 0
SEGMENT DATA FOR FLD
T5
T4
T3
T2
DIGIT SIGNAL
GND
T1 DIGIT SIGNAL
IC8 LB1294
IC9 LB1294
FLD DRIVE
-29V
+5V
SR1
SR2
SR3
FLD PCB
FLD
SEG
G1
G2
G3
G4
G5
IC6 LB1294
FLD DRIVE
+5V
VCC
HOLD
BAND
B1
A1
B3
A3
B2
A2
FUNCTION SW SELECT
POF
INT
RESET
XOUT
XIN
K4
K3
K2
K1
KEY INPUT
AT-600 ③③ HOLD)
TUNER KEY MATRIX (BAND)
IC2 TC4052BP (FUNCTION)
IC4 TC4052BP (TAPE 2)
IC3 TC4052BP (TAPE 1)
INPUT SELECTOR
POWER OFF MANAGE
OSC
IC9
C17
R21
R22
R14
TR1
R17
C13 0.047F
R16
C22
R15
R20
D8
+6V
AT-600
C14
RESET
T1 400KHz
AUX
BAND (TUNER)
PHONO
FADER
TAPE 2
TAPE 1
MEMORY
DEFEAT
VOLUME DOWN
BALANCE L
TREBLE −
BASS −
VOLUME UP
BALANCE R
TREBLE +
BASS +
D3
D4
D5
D6
D7
FLD PCB KEY BOARD PCB

Fig. 1-2 AA-100 Peripheral Block Diagram (AA-R22/L)

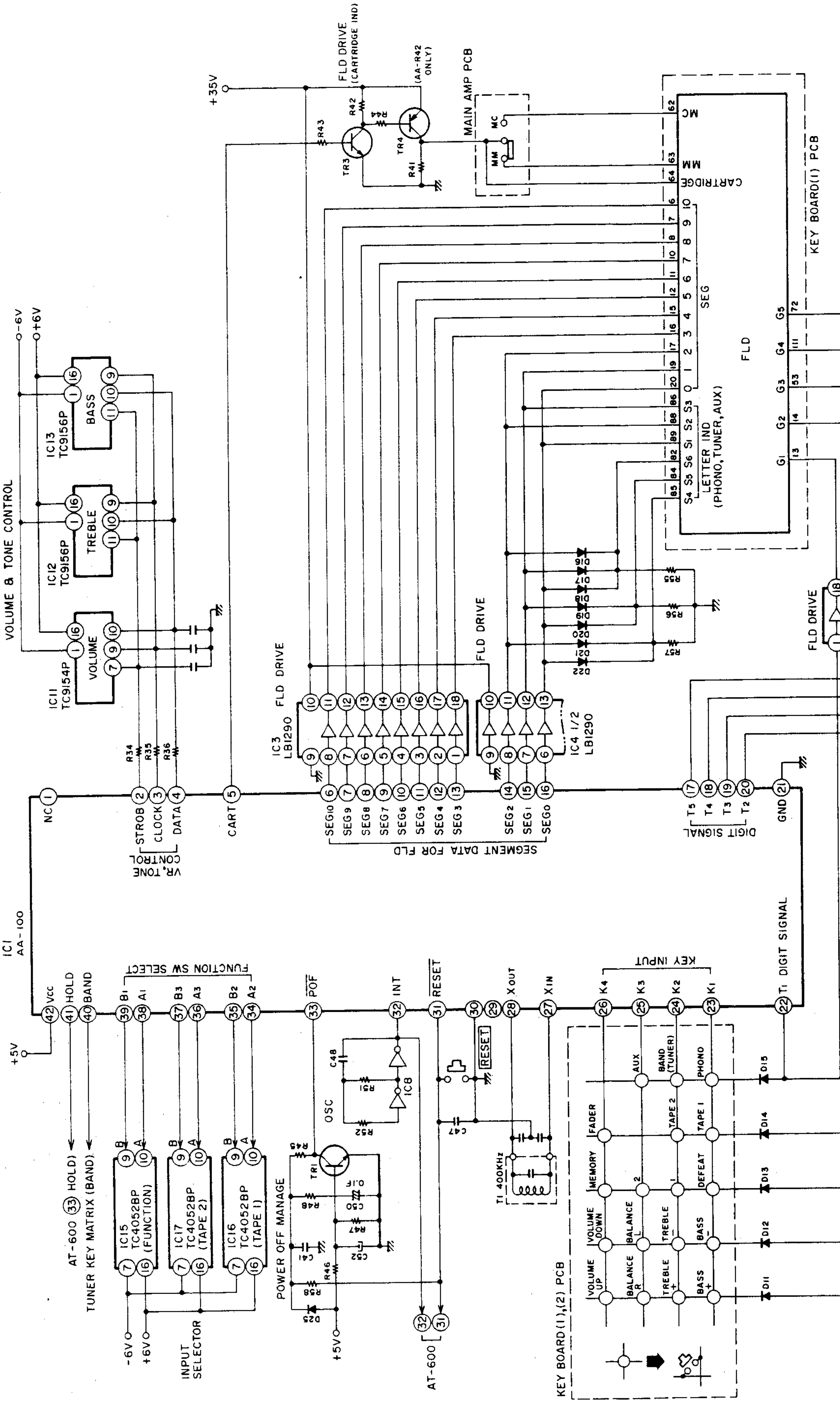

VOLUME & TONE CONTROL
IC11 TC9154P
VOLUME
IC12 TC9156P
TREBLE
IC13 TC9156P
BASS
-6V
+6V
R34
R35
R36
IC1 AA-100
NC
STROB
CLOCK
DATA
VR,TONE CONTROL
CART
SEG10
SEG9
SEG8
SEG7
SEG6
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
SEGMENT DATA FOR FLD
IC3 LB1290
FLD DRIVE
IC4 1/2 LB1290
IC4 2/2 LB1290
T5
T4
T3
T2
DIGIT SIGNAL
GND
T1 DIGIT SIGNAL
+35V
FLD DRIVE (CARTRIDGE IND)
(AA-R42 ONLY)
R42
R43
R44
R41
TR3
TR4
MAIN AMP PCB
MC
MM
CARTRIDGE
SEG
FLD
LETTER IND (PHONO,TUNER,AUX)
S4 S5 S6 S1 S2 S3
G1 G2 G3 G4 G5
KEY BOARD(1) PCB
D16
D17
D18
D19
D20
D21
D22
R55
R56
R57
+5V
VCC
HOLD
BAND
B1 A1
B3 A3
B2 A2
FUNCTION SW SELECT
POF
INT
RESET
XOUT
XIN
K4 K3 K2 K1
KEY INPUT
AT-600 (33) HOLD
TUNER KEY MATRIX (BAND)
IC15 TC4052BP (FUNCTION)
IC17 TC4052BP (TAPE 2)
IC16 TC4052BP (TAPE 1)
INPUT SELECTOR
POWER OFF MANAGE
OSC
IC8
C48
R51
R52
R45
TR1
R48
C50
0.1F
R47
C41
C52
R46
R38
D25
C47
AT-600
T1 400KHz
KEY BOARD(1),(2) PCB
AUX
BAND (TUNER)
PHONO
FADER
TAPE 2
TAPE 1
MEMORY
DEFEAT
VOLUME DOWN
BALANCE L
TREBLE -
BASS -
VOLUME UP
BALANCE R
TREBLE +
BASS +
D11
D12
D13
D14
D15

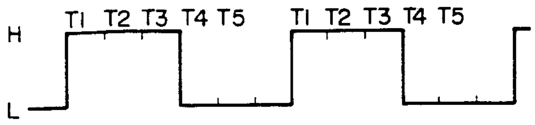
Fig. 1-3 AA-100 Peripheral Block Diagram (AA-R32/L, 42)

2. AA100 TERMINALS DESCRIPTION

No.	Terminal Description	Function
1	NC	
2	STROB	Output Control Signal for Elect. VR and TONE Output at ACTIVE "H"
3	CLOCK	
4	DATA	
5	CART (SEG11)	Output "H" when phono
6	SEG10	SEGMENT DATA for Display Output at ACTIVE "H"
7	SEG9	
8	SEG8	
9	SEG7	
10	SEG6	
11	SEG5	
12	SEG4	
13	SEG3	
14	SEG2	
15	SEG1	
16	SEG0	
17	T5	DIGIT Signal Output at ACTIVE "H"
18	T4	
19	T3	
20	T2	
21	GND	DIGIT Signal
22	T1	
23	K1	KEY Input Input at ACTIVE "H"
24	K2	
25	K3	
26	K4	
27	XIN	Clock OSC Coil
28	XOUT	
29	CK	unused
30	TEST	unused
31	$\overline{\text{RESET}}$	Reset at ACTIVE "L"
32	INT	Interrupt Signal
33	$\overline{\text{POF}}$	Power OFF at ACTIVE "H"
34	A2	FUNCTION SW Select Signal (B1, A1) . . . . TUNER, PHONO, AUX (B2, A2) . . . . Tape 1 (B3, A3) . . . . Tape 2 Output at ACTIVE "H"
35	B2	
36	A3	
37	B3	
38	A1	
39	B1	
40	BAND	Output "H" for Tuner Band Select when Phono and Aux
41	HOLD	Output "H" for HOLD of AT600
42	VCC	+5 V

3. DISPLAY DATA

Segment data output (example: SEG 10 output when VOLUME 10, TREBLE 10 and BASS 10 are lit)



H: LIGHTING L: EXTINGUISHING

Digit Signal	Pin No.	T5 (Grid 5)	T4 (Grid 4)	T3 (Grid 3)	T2 (Grid 2)	T1 (Grid 1)
Segment Data	Pin No.	17	18	19	20	22
SEG 11	5					
SEG 10	6			VOLUME 10	TREBLE +10	BASS +10
SEG 9	7		BALANCE	VOLUME 9	TREBLE +8	BASS +8
SEG 8	8	FADER	VOLUME	VOLUME 8	TREBLE +6	BASS +6
SEG 7	9	○ ②	VOLUME 7	M2	TREBLE +4	BASS +4
SEG 6	10		VOLUME 6	M1	TREBLE +2	BASS +2
SEG 5	11	DUB 2 ← 1 ○ ①	VOLUME 5	Frame of ACOUSTIC		
SEG 4	12		VOLUME 4	ACOUSTIC	TREBLE −2	BASS −2
SEG 3	13		VOLUME 3		TREBLE −4	BASS −4
SEG 2	14	AUX	VOLUME 2		TREBLE −6	BASS −6
SEG 1	15	TUNER	VOLUME 1	PASS LINE	TREBLE −8	BASS −8
SEG 0	16	PHONO	VOLUME 0	BALANCE	TREBLE −10	BASS −10

4. DIGIT OUTPUT OF AA-100

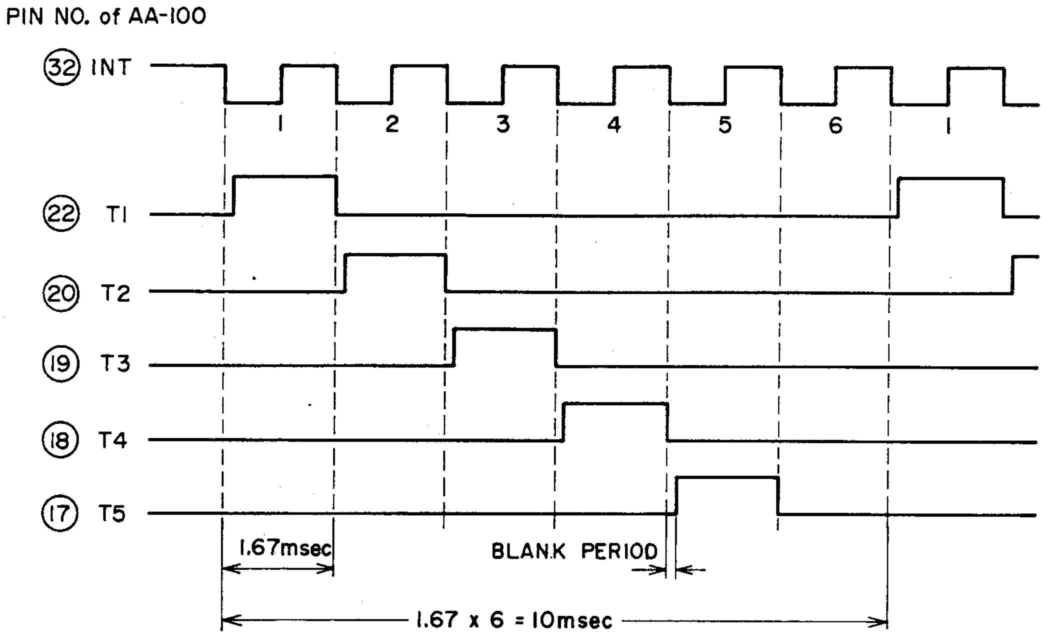


Fig. 1-4 Digit Output Timing Chart

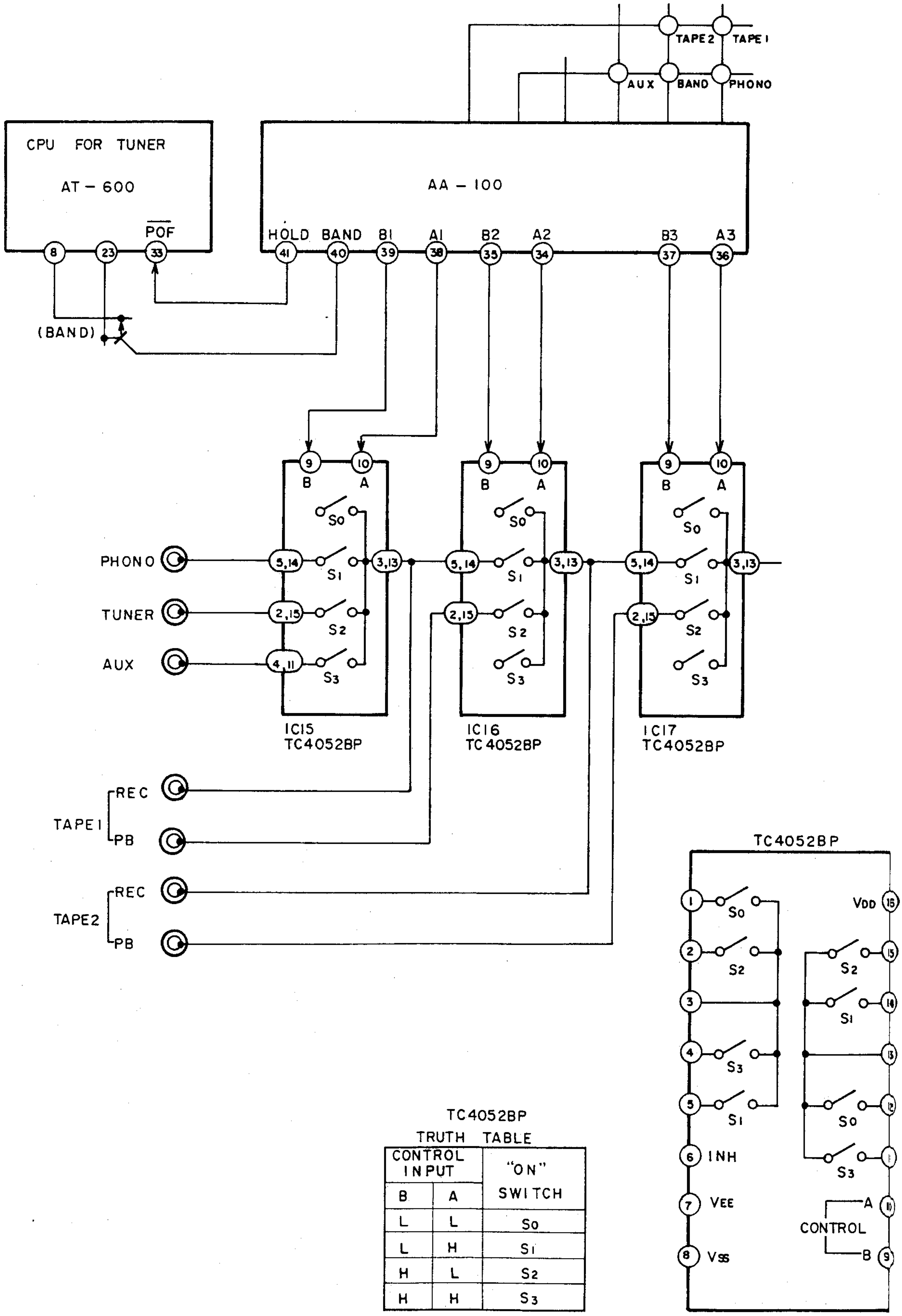
Interrupt request is made at the repetition rate of 1.67 msec by the gate oscillator connected to the INT terminal and interrupt processing is carried out. Synchronized with this interrupt, digit output with the timing as shown in Fig. 1-4 is obtained at T1 to T5.

With the interrupts of 1.67 msec each, the digit data of 1 is output for one bit only in the set T1 to T5, and this is repeated 5 times. Then, every bit is provided with one 0 section, and then this cycle of 6 interrupts in total is repeated.

All the digits of key reading and dynamic fluorescent display are specified by this digit data.

All the 0 sections are provided at the 6th section in order to match the display duty cycle of the tuner micro-computer AT-600, and no display or key reading is available at this section. (AA-100 has only T1 to T5 while AT-600 has T1 to T6, and therefore, one dummy section without output is provided to meet the AT-600 duty cycle.)

5. DESCRIPTION OF INPUT SELECTOR


TAPE 2
TAPE 1
AUX
BAND
PHONO
CPU FOR TUNER
AT – 600
POF
8
23
33
AA – 100
HOLD
BAND
B1
A1
B2
A2
B3
A3
41
40
39
38
35
34
37
36
(BAND)
9
10
B
A
S0
S1
S2
S3
5,14
2,15
4,11
3,13
PHONO
TUNER
AUX
IC15
TC4052BP
IC16
TC4052BP
IC17
TC4052BP
TAPE 1
REC
PB
TAPE 2
REC
PB
TC4052BP
VDD
INH
VEE
VSS
CONTROL
A
B
1
2
3
4
5
6
7
8
9
11
12
13
14
15
16

TC4052BP
TRUTH TABLE

CONTROL INPUT		"ON" SWITCH
B	A	
L	L	S0
L	H	S1
H	L	S2
H	H	S3

Fig. 1-5 Block Diagram of Input Switching Section

5-1. FUNCTION SWITCHING

KEY	㊶ HOLD	㊵ BAND	㊴ B1	㊳ A1
PHONO	H	L	L	H
BAND	L	L	H	L
AUX	H	L	H	H

Fig. 1-6 Output Data of AA-100 Pin ㊳ to ㊶

Fig. 1-6 shows the data output from PINS ㊳ to ㊶ of AA-100 when each function key is pressed. This data is output when the status prior to the key operation is available in other function. When the PHONO key is pressed, "H" is applied to A of the analog switch TC4052BP and "L" to B, S1 is turned ON and the phono signal is selected. Similarly, when the BAND SELECTOR key is pressed, "L" is applied to A and "H" to B, and S2 is turned ON, and when the AUX key is pressed, "H" is applied to both A and B, S3 is turned ON, and the respective signal is selected. In the case of PHONO and AUX, "H" is output from HOLD (PIN ㊶), and therefore, the tuner CPU AT-600 is put in hold mode and the tuner operation is stopped.

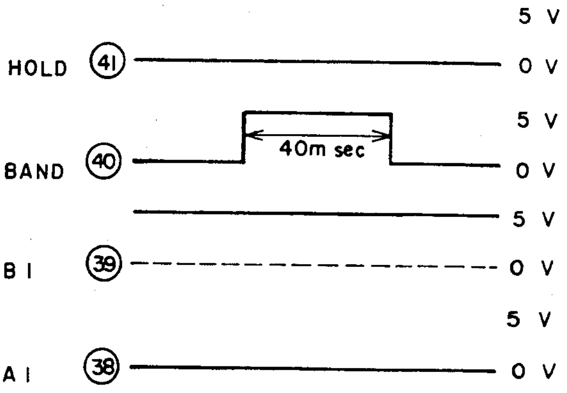


Fig. 1-7 Output Data of AA-100 Pin ㊳ to ㊶ (When press the BAND key)

If the same function key is pressed a second time, no change occurs in the output of Pins ㊳ to ㊶ of AA-100, except that if the BAND SELECTOR key is pressed repeatedly in tuner mode, the pulse of 40 msec is output at Pin ㊵ while the S2 (switch for tuner) ON data remains unchanged at Pins ㊳ and ㊴ as shown in Fig. 1-7. That is, it will turn ON the BAND SELECTOR key equivalent of the tuner key matrix and the band is switched in the sequence . . . FM, LW, MW, FM . . .

5-2. TAPE MONITOR SWITCHING

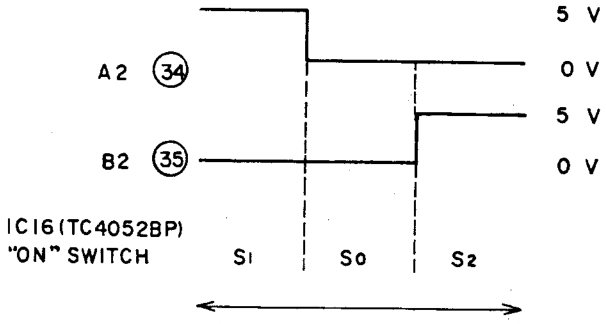


Fig. 1-8 Output of AA-100 Pin ㉞ , ㉟ (TAPE 1)

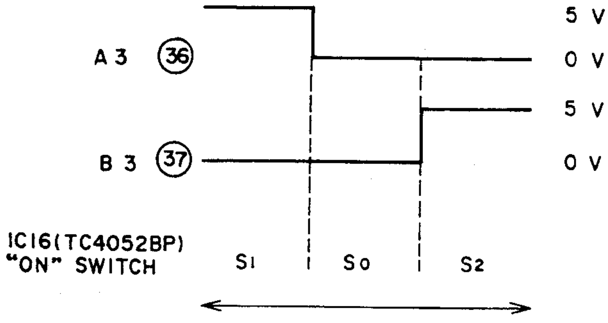


Fig. 1-9 Output of AA-100 Pin ㊱ , ㊲ (TAPE 2)

Fig. 1-8 and Fig. 1-9 show the output of A and B and the operation switch timing chart of the analog switches IC16 and 17 (TC4052BP) when TAPE 1 or TAPE 2 keys are pressed.
In both cases, the control data sections of A = "L" and B = "L" are provided to operate the dummy switch S_0 so that no oscillating loop due to the short-circuit of the REC and PB lines can be created.

6. OPERATION OF ELECTRONIC VOLUME CONTROL AND TONE CONTROL

6-1. OPERATION OF ELECTRONIC VOLUME CONTROL

AA-100 has been given the functions of controlling the electronic volume and electronic tone control ICs. VOLUME, BASS and TREBLE control ICs are controlled by the serial data from Pins ② to ④ of AA-100. There are 3 data bits: DATA, CLOCK and STROB. The data bit includes the codes, C_0, C_1 and C_2, for chip selection, and by connecting the terminal of C_0, C_1 or C_2, "L" to (−) and "H" to (+), at each control IC, reception or non-reception of incoming serial data can be selected. For the VOLUME IC, all the codes are specified as "0". In this system, the following codes are set for BASS and TREBLE.

	C_0 ⑤	C_1 ⑥	C_2 ⑦
BASS	L	H	L
TREBLE	H	L	L

Fig. 1-10 Chip select Codes for BASS and TREBLE ICs (TC9156P)

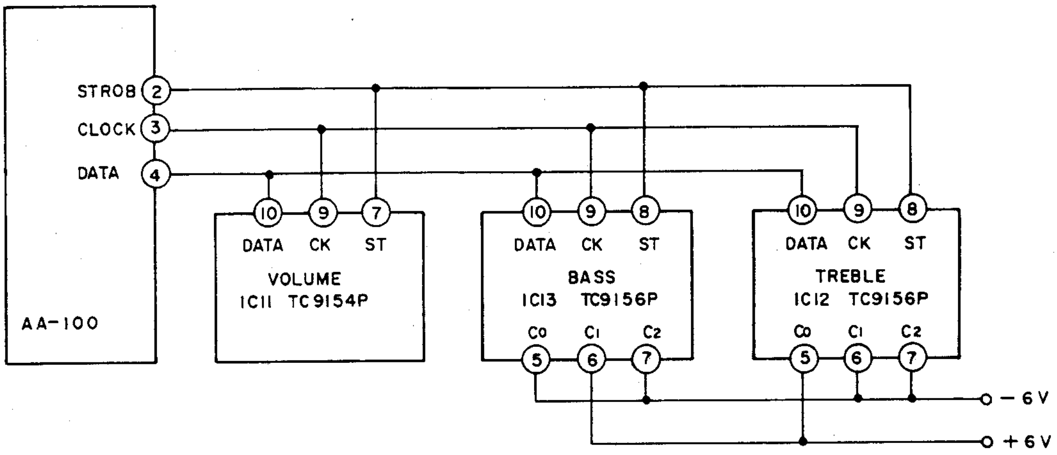

STROB
CLOCK
DATA
2
3
4
AA-100
DATA CK ST
VOLUME
IC11 TC9154P
BASS
IC13 TC9156P
TREBLE
IC12 TC9156P
Co Ci C2
10 9 7
10 9 8
5 6 7
−6V
+6V

Fig. 1-11 Electronic volume and tone control

6-2. SERIAL TRANSFER DATA

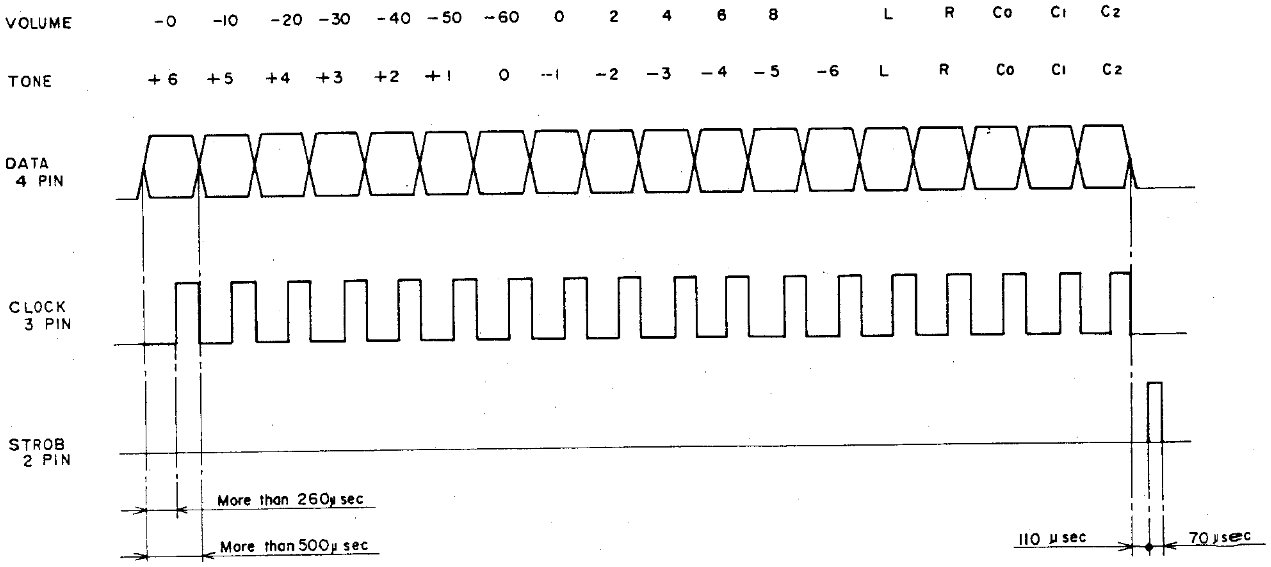

VOLUME
-0 -10 -20 -30 -40 -50 -60 0 2 4 6 8 L R Co Ci C2
TONE
+6 +5 +4 +3 +2 +1 0 -1 -2 -3 -4 -5 -6 L R Co Ci C2
DATA
4 PIN
CLOCK
3 PIN
STROB
2 PIN
More than 260μ sec
More than 500μ sec
110 μ sec
70 μ sec

Fig. 1-12 Serial Transfer Data

The leading edge of the clock pulse occurs more than 260 μsec after the data bit is set, and at this point, reception of the data takes place. At the trailing edge of the clock pulse, the data bit sets the next data. When this is repeated for 18 bits, the clock is turned OFF and after 110 μsec the pulse of 70 μsec is output, and the IC chip selected by C_0, C_1 or C_2 is set to the value corresponding to the data taken in. In the case of VOLUME, the data of the 13th bit is not used, but 0 is always output.

6-3. COMPOSITION OF VOLUME IC TC9154P AND TONE CONTROL (BASS, TREBLE) IC TC9156P

6-3-1. Internal Block Diagram of TC9154P (Volume)

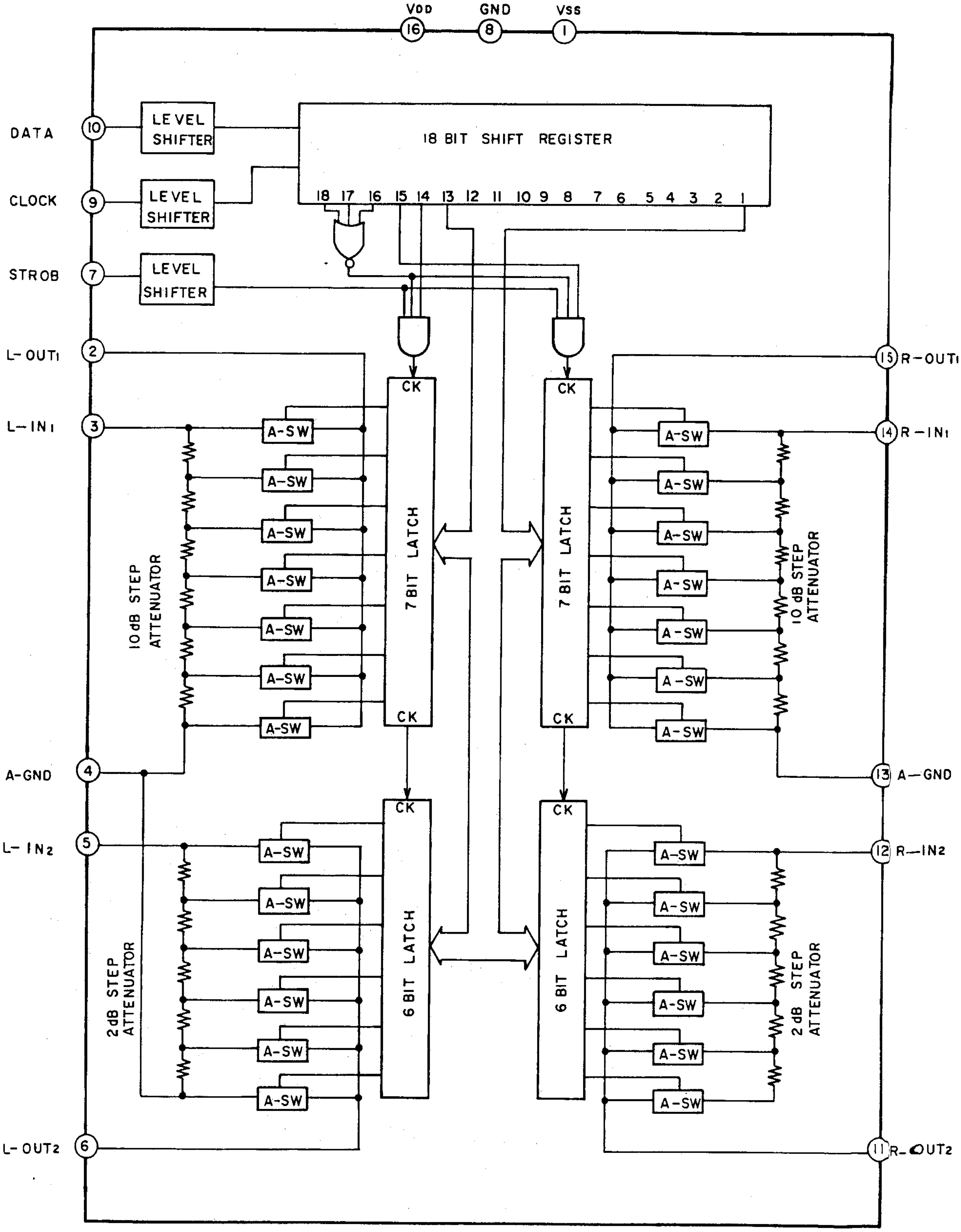

VDD
16
GND
8
VSS
1
DATA
10
CLOCK
9
STROB
7
LEVEL SHIFTER
LEVEL SHIFTER
LEVEL SHIFTER
18 BIT SHIFT REGISTER
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
L-OUT1
2
L-IN1
3
A-GND
4
L-IN2
5
L-OUT2
6
R-OUT1
15
R-IN1
14
A-GND
13
R-IN2
12
R-OUT2
11
CK
7 BIT LATCH
6 BIT LATCH
A-SW
10dB STEP ATTENUATOR
2dB STEP ATTENUATOR

Fig. 1-13 Internal Block Diagram of TC9 154P

6-3-2. Attenuator of TC9154P

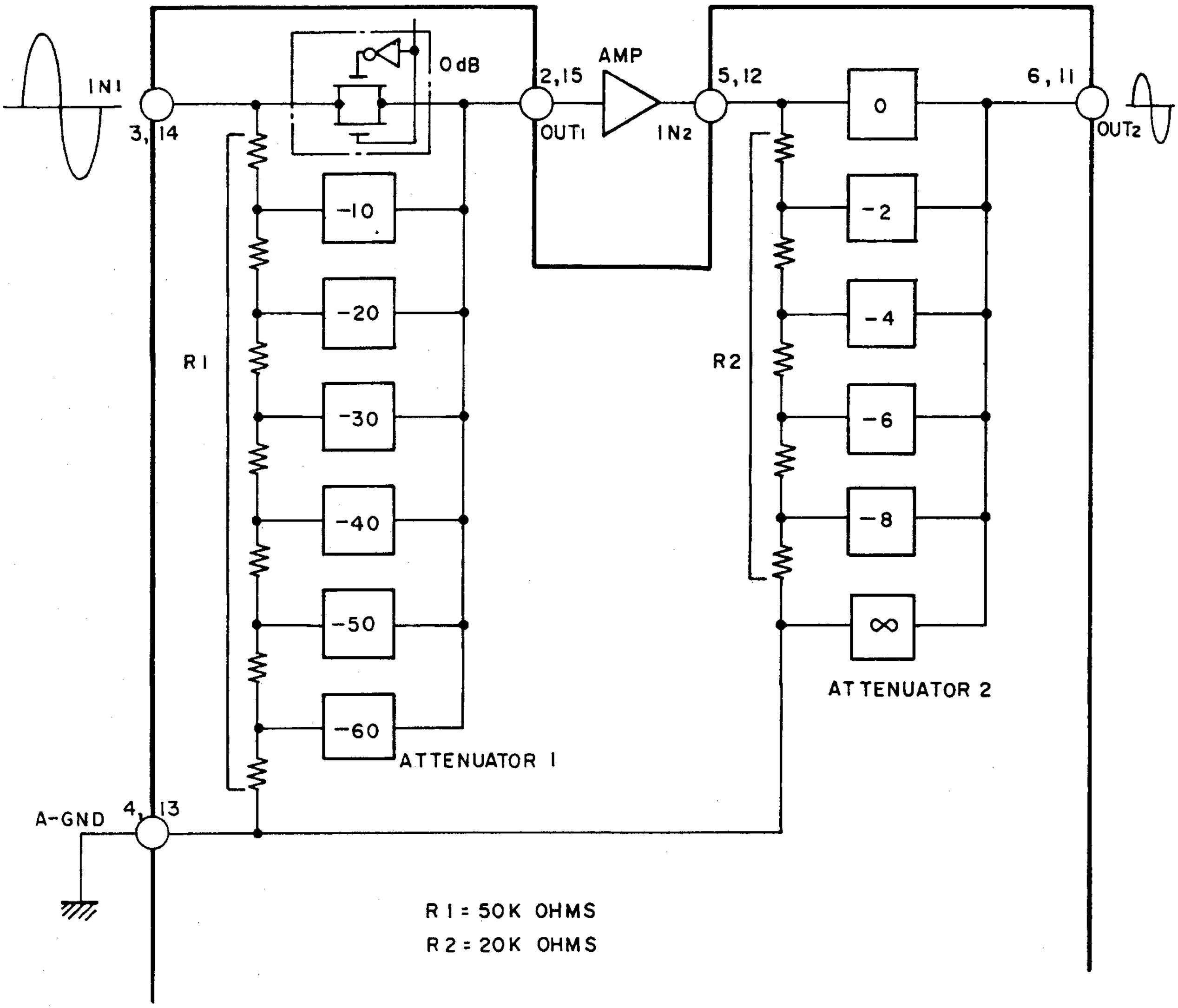

IN1
3, 14
0dB
2,15
OUT1
AMP
IN2
5, 12
6, 11
OUT2
-10
-20
-30
-40
-50
-60
R1
ATTENUATOR 1
0
-2
-4
-6
-8
∞
R2
ATTENUATOR 2
A-GND
4, 13
R1 = 50K OHMS
R2 = 20K OHMS

Fig. 1-14 Attenuator of TC9154P

The attenuator consists of diffused resistors and analog switches. Attenuator 1 attenuates 0dB to 60dB in steps of 10dB and Attenuator 2 attenuates 2 to 8dB in steps of 2dB, thus attenuating 0 to 66dB in total in steps of 2dB.

6-3-3. Internal Block Diagram of TC9156P (BASS, TREBLE)

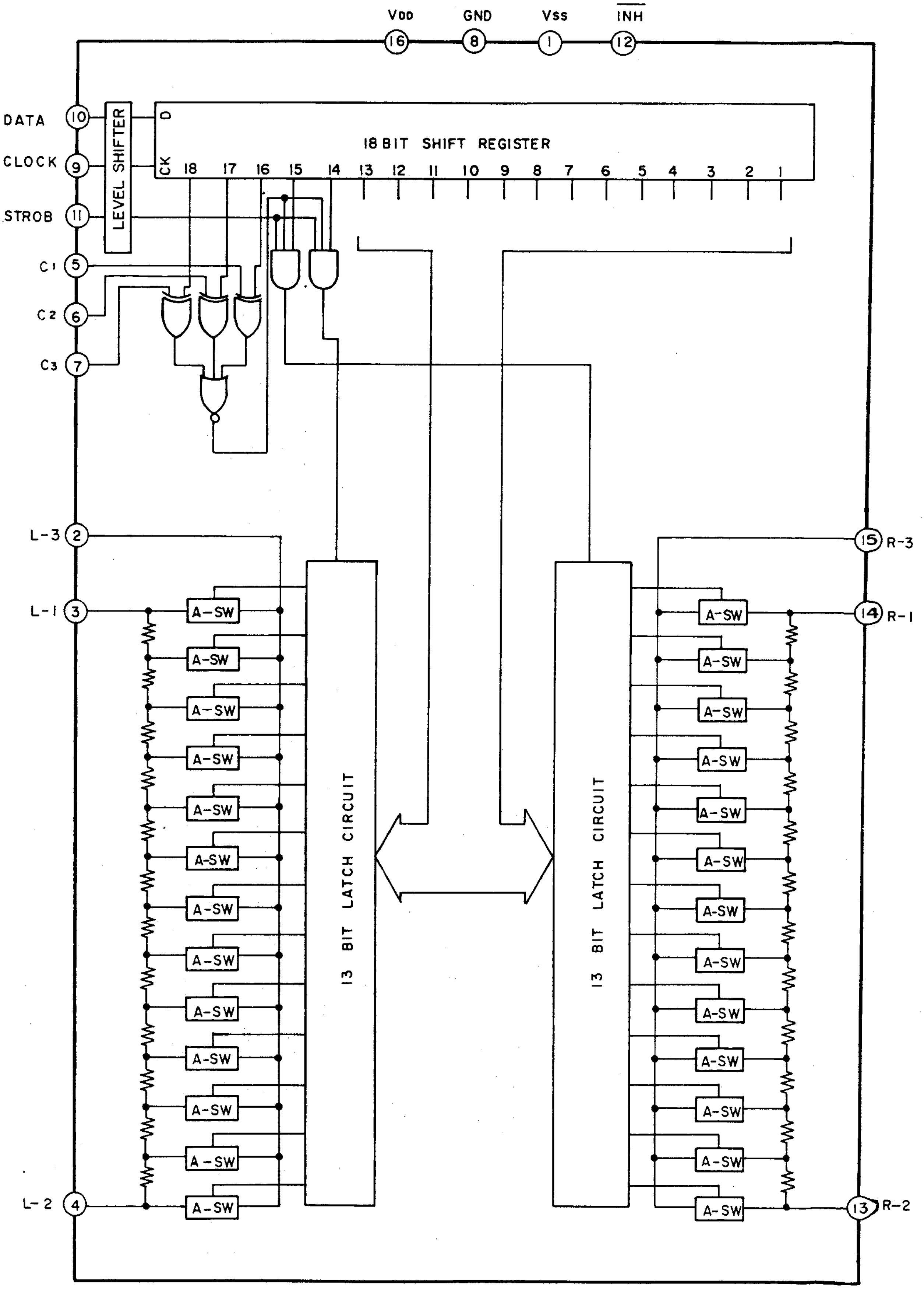

VDD
GND
VSS
INH
16
8
1
12
DATA
CLOCK
STROB
C1
C2
C3
10
9
11
5
6
7
LEVEL SHIFTER
D
CK
18 BIT SHIFT REGISTER
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
L-3
L-1
L-2
2
3
4
R-3
R-1
R-2
15
14
13
A-SW
13 BIT LATCH CIRCUIT
13 BIT LATCH CIRCUIT

Fig. 1-15 Internal Block Diagram ofTC9156P

6-3-4. Variable resistor of TC9156P

The variable resistor consists of diffused resistors and analog switches.

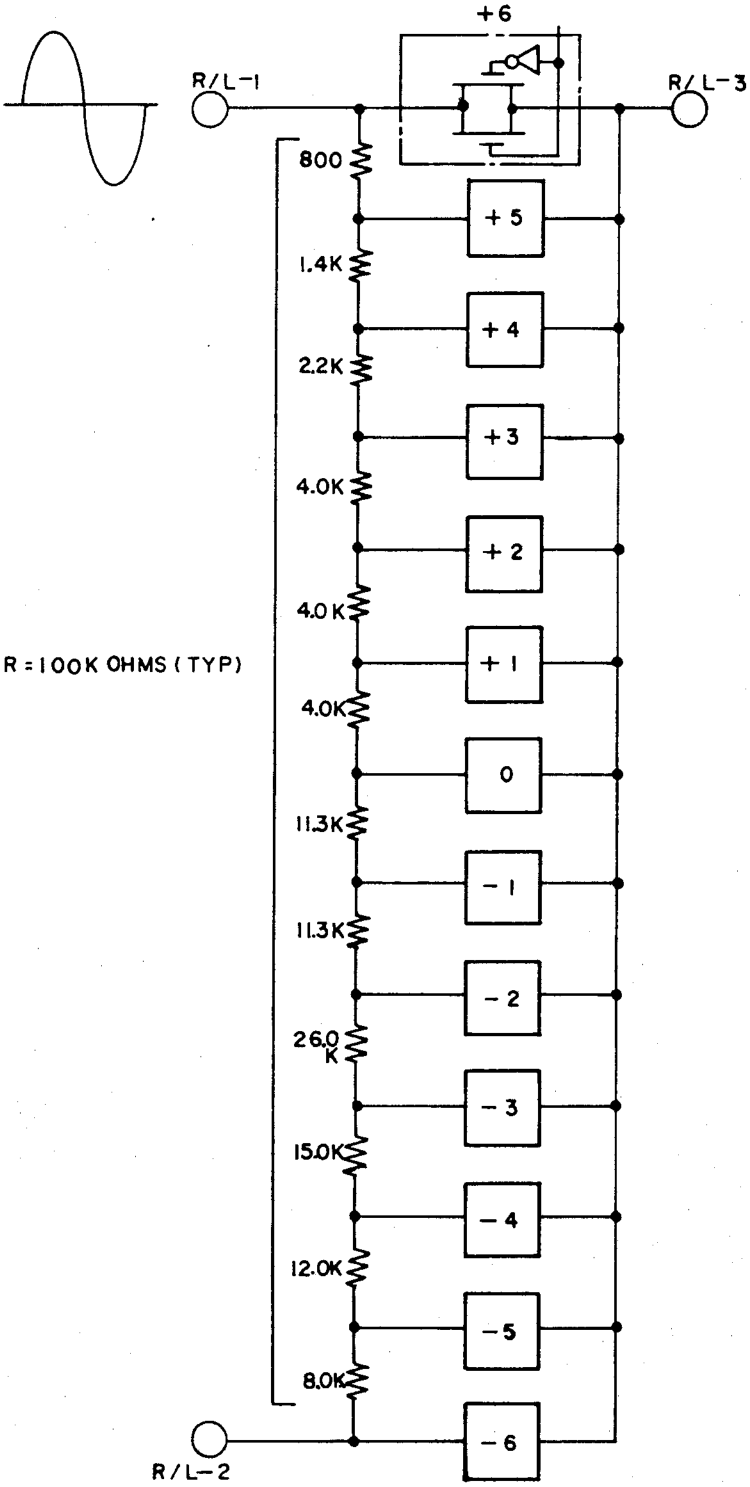

+6
R/L-1
R/L-3
800
+5
1.4K
+4
2.2K
+3
4.0K
+2
4.0 K
R = 100K OHMS (TYP)
+1
4.0K
0
11.3K
-1
11.3K
-2
26.0 K
-3
15.0K
-4
12.0K
-5
8.0K
-6
R/L-2

Fig. 1-16 Variable Resistor of TC9156P

6-3-5. Operation

By entering optional attenuation data from the DATA, CLOCK or STROB terminal, the internal attenuator is set. The data stream consists of 18 bits as follows.

1) VOLUME

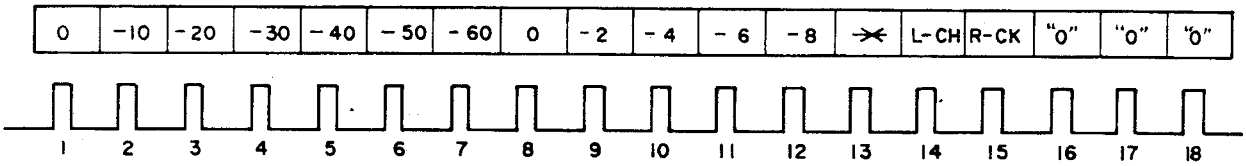

0
−10
−20
−30
−40
−50
−60
0
−2
−4
−6
−8
→←
L-CH
R-CK
"0"
"0"
"0"
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Fig. 1-17 Data of Volume Control

If, for example, the data stream 000100001000011000 is input by the clock from the data terminal, the attenuation will be −32dB.

2) TONE Control

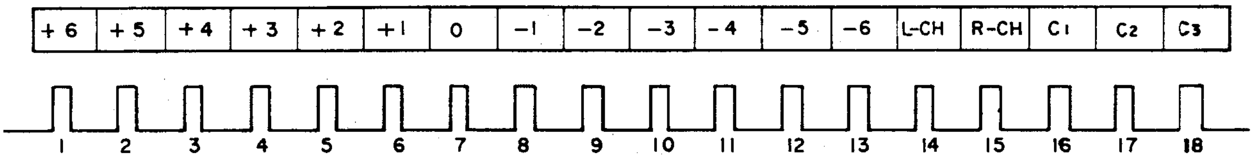

+6
+5
+4
+3
+2
+1
0
−1
−2
−3
−4
−5
−6
L-CH
R-CH
C1
C2
C3
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Fig. 1-18 Data of Tone Control

If, for example, the data stream 000100000000011000 is input by the clock from the data terminal, the position will be +3.

3) The data stream taken in is synchronized with the STROB signal to set the attenuator. (same for VOLUME and TONE controls)

Example: Volume IC

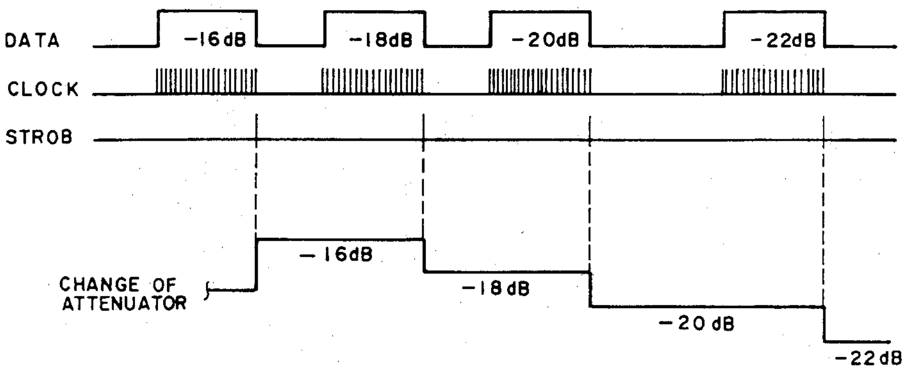

DATA
−16dB
−18dB
−20dB
−22dB
CLOCK
STROB
CHANGE OF ATTENUATOR
−16dB
−18dB
−20 dB
−22dB

Fig. 1-19 Relation of Data and Attenuator

6-3-6. UP/DOWN Operation of VOLUME Control

The VOLUME varies in steps of 2dB each from 0dB— to 66dB and the step ∞ totalling 35 electronic steps. (10 display steps for FL display)

1) Step by pressing of VOLUME Control
   a. The volume moves UP or DOWN one step at a time, thus changing the display accordingly. Pressing VOLUME during the BALANCE display will only switch to the VOLUME display at the existing value without changing it.
   b. No action will occur at MAX or MIN even if further UP or DOWN action is attempted.
2) Continuous pressing (Holding down the key)
   a. After the first 2dB step, the second 2dB step occurs after 500msec and subsequently changes in 2dB steps occur every 170msec, and the display follows. But if the pressing is started during the BALANCE display, the first display is only switched to VOLUME without changing its value, and then, after 500msec, the volume setting is changed every 170msec.
   b. The rest is the same as 1).

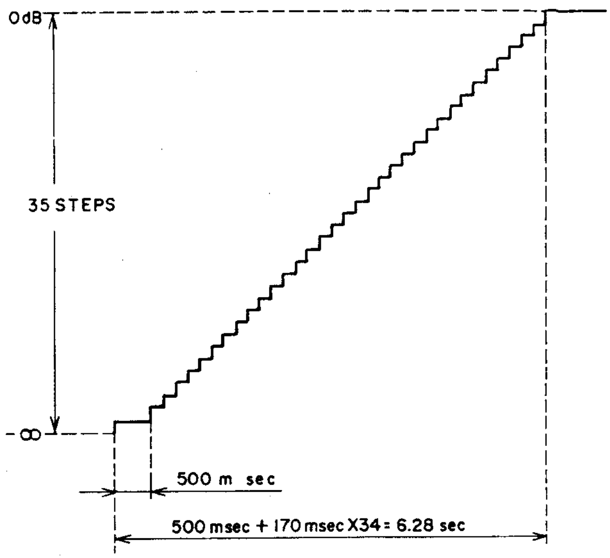


Fig. 1-20 Volume Change
(when the key is continuously pressed)

6-3-7. UP/DOWN Operation of BASS and TREBLE

Both BASS and TREBLE vary in steps of ±5 from 0, totalling 11 steps.

1) Step by step pressing of Tone Controls
   a. The value is changed one step at a time to the + or − side.
   b. The display is changed (point display).
   c. No further action after reaching MAX or MIN.
   d. All the acoustic memory displays become invisible and the response line is lit.
2) Continuous pressing (Holding down the key)
   a. After the first one step change, the second step change occurs after 500msec, and then, subsequently the value is changed every 170msec. However at the centre value, a 640msec stop occurs before going to the next step. (See Fig. 1-21)
   b. The rest is the same as 1).

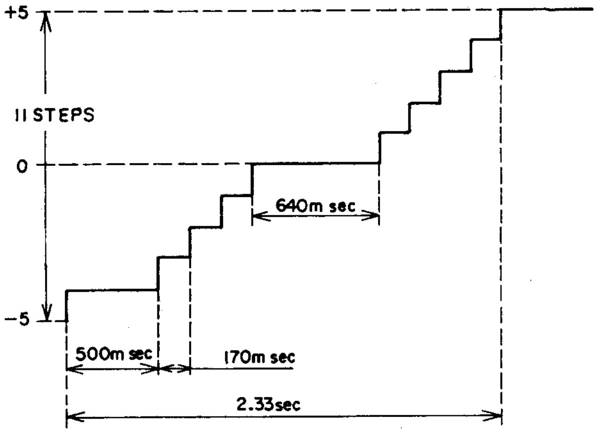


Fig. 1-21 Volume Change of BASS and TREBLE

6-3-8. BALANCE Control

The Balance value varies in ±10 steps from 0 totalling 21 steps.

1) Step by step pressing
   a. Change will occur one step at a time to LEFT or RIGHT and the display is also changed in sympathy. However operation of BALANCE during the display of VOLUME, results in the change of display to BALANCE without change of setting.
   b. Once the LEFT or RIGHT end is reached, no further action will occur even if the key is pressed again.
   c. After the key is pressed for the last time, the display is switched automatically to VOLUME after 5 sec.

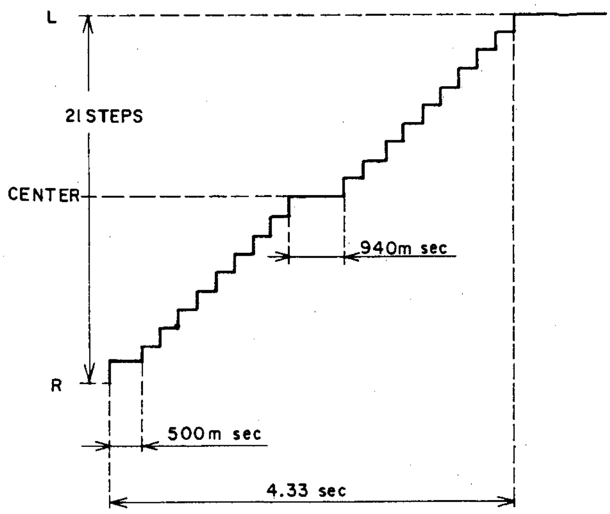


Fig. 1-22 BALANCE Change

2) Continuous pressing (Holding down the key)
   a. After the first step change 500msec elapses and subsequently one step change is made every 170msec and the display changes in sympathy. But if the pressing is started during the VOLUME display, the first display is changed to BALANCE without change of setting, and after the elapse of 500msec, the setting will change every 170msec.
   b. When the center value is reached, a 940msec stop occurs before going to the next step.
   c. The rest is the same as 1).

6-3-9. Operation of FADER

1) 1st pressing
   a. The attenuator is set to ∞ to create MUTE status. But the VOLUME display remains same.
   b. The single segment of FADER is lit.
2) 2nd pressing
   a. Fading-in occurs at about 60msec/step up to the VOLUME value prior to the MUTE condition.
   b. FADER segment is lit every 5 steps, and finally extinguished.

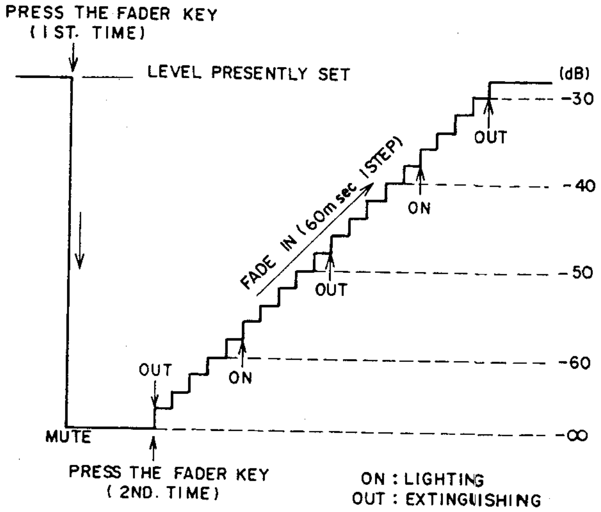


Fig. 1-23 FADE IN

7. THE STATUS THAT WILL BE ESTABLISHED WHEN RESET BUTTON IS PRESSED

Function:	Tuner (FM)
Tape 1:	OFF
Tape 2:	OFF
Bass:	Flat (Defeat)
Treble:	Flat (Defeat)
Volume:	40 dB Point (FLD Volume Indicator = "3")
Balance:	Center
Acoustic Memory:	Cancel
Preset Station:	Cancel

8. RESET STATUS WHEN POWER IS ON

When the power for this micro-computer becomes OFF, the clock ceases to operate and the inner status is maintained by the back-up capacitor. Therefore, the last setting is reset in principle.

Reset status when power is ON

Point	Preset status when power is recovered
Function:	Last selection
Tone:	Value of the last setting. If power is turned OFF while the acoustic memory is being loaded, the acoustic display will not be reset.
Volume:	OFF at less than 26dB → last setting OFF at 26dB or more → 26dB (indicator "5")
Balance:	Last setting
Acoustic Memory:	Last setting for the contents stored
Fader:	OFF in MUTE → MUTE released OFF in FADE-IN → FADE-IN terminated
Acoustic Lighting:	Lighting terminated
BALANCE Display:	VOLUME display

If the voltage of the back-up capacitor has fallen below the holding voltage of this micro-computer after the power has been switched OFF for a long time, the last setting cannot be reset when the power is recovered.

9. HOW TO MAKE LETTERS (AA-R32 and R42 only)

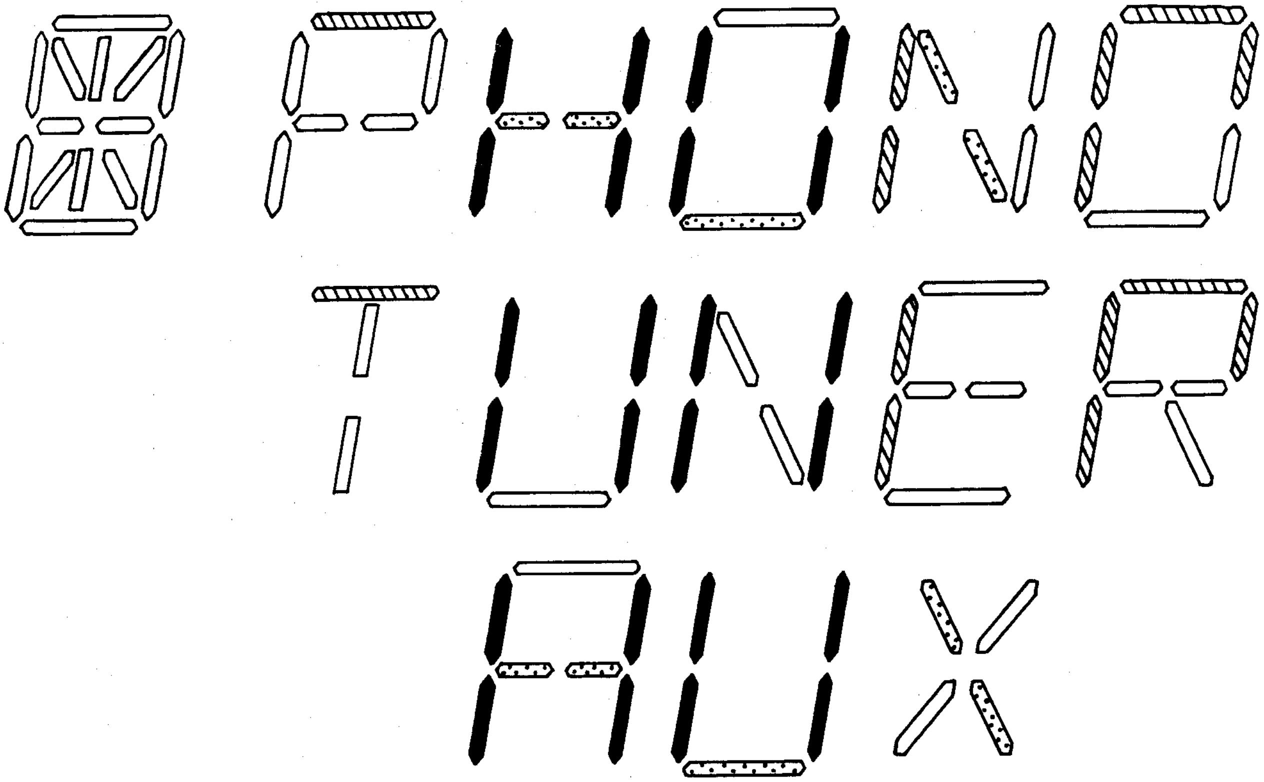


Fig. 1-24

Common parts in the above 3 patterns S6 (FLD PIN 82) ▮

Common parts in PHONO, TUNER S5 (FLD PIN 84) (except S6) ▨

Common parts in PHONO, AUX S4 (FLD PIN 85) (except S6 and S5) ░

Segment used in TUNER only S3 (FLD PIN 86)

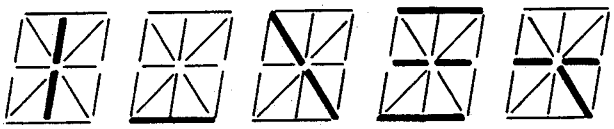


Fig. 1-25

Segment used in AUX only S2 (FLD PIN 88)

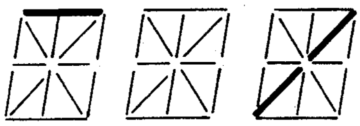


Fig. 1-26

Segment used in PHONO only S1 (PIN 89)

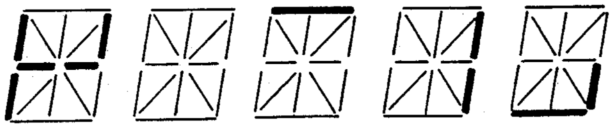


Fig. 1-27

That is, in order to display the letter of PHONO, AUX or TUNER, the data may be output so that S6, S5, S4 and S1; S6, S4 and S2, or S6, S5 and S3 are lit respectively.

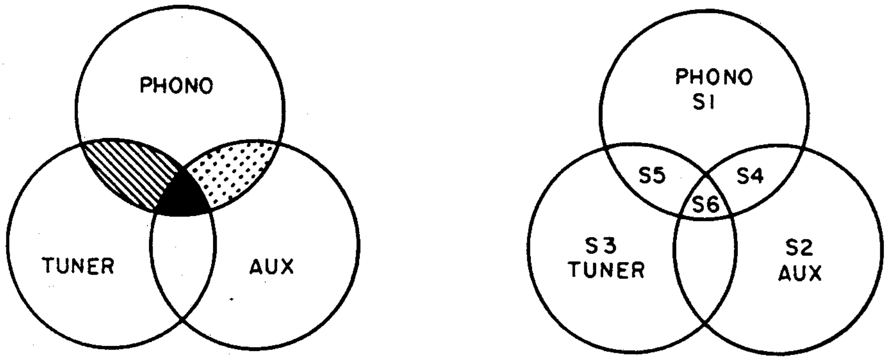

PHONO
TUNER
AUX
PHONO
S1
S5
S4
S6
S3
TUNER
S2
AUX

Fig. 1-28

Since the data from the micro-computer includes only one data each to become "H" in AUX, TUNER AND PHONO, it is resolved as follows.

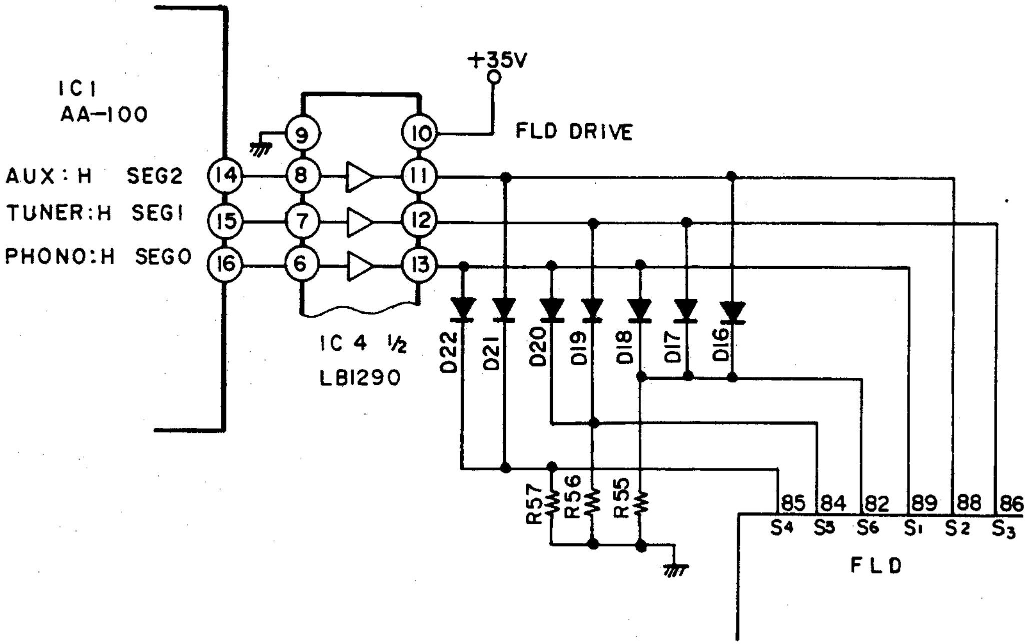

IC1
AA–100
AUX : H SEG2
TUNER:H SEG1
PHONO:H SEG0
14
15
16
9
8
7
6
10
11
12
13
+35V
FLD DRIVE
IC 4 ½
LB1290
D22
D21
D20
D19
D18
D17
D16
R57
R56
R55
85
84
82
89
88
86
S4
S5
S6
S1
S2
S3
FLD

Fig. 1-29 Resolve Circuit of Data

III. OPERATION OF TUNER SECTION CONTROL IC AT-600 PERIPHERAL CIRCUIT

1. BLOCK DIAGRAM OF AT-600 PERIPHERAL

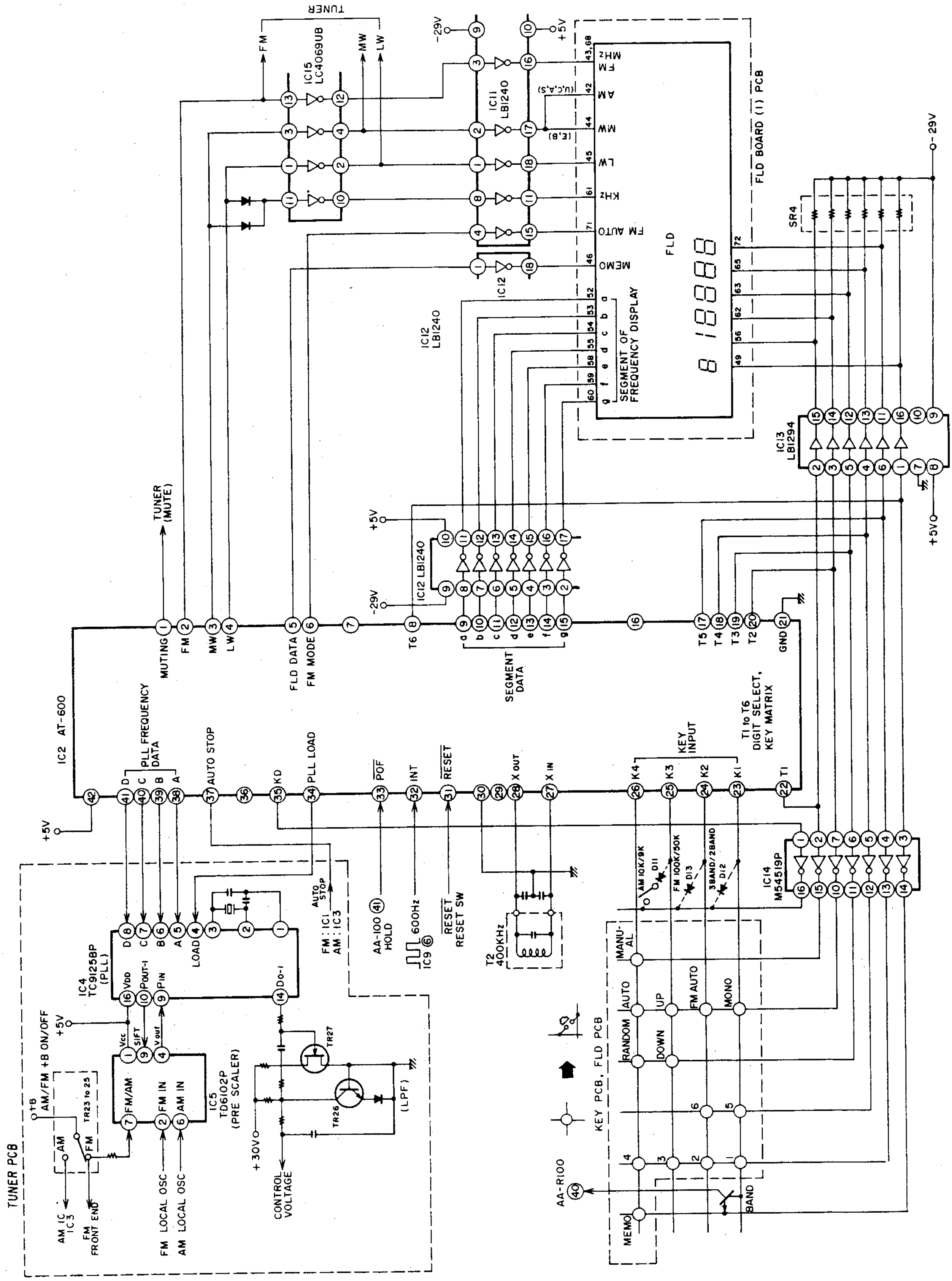

TUNER
FM
MW
LW
IC15 LC4069UB
IC11 LB1240
IC12 LB1240
IC12
IC13 LB1294
IC14 M54519P
IC2 AT-600
IC4 TC9125BP (PLL)
IC5 TD6102P (PRE SCALER)
FLD
FLD BOARD (1) PCB
SR4
SEGMENT OF FREQUENCY DISPLAY
MHz
FM
AM
MW
LW
KHz
FM AUTO
MEMO
-29V
+5V
TUNER (MUTE)
MUTING
FLD DATA
FM MODE
T6
SEGMENT DATA
T5
T4
T3
T2
GND
T1 to T6 DIGIT SELECT, KEY MATRIX
KEY INPUT
K4
K3
K2
K1
T1
PLL FREQUENCY DATA
AUTO STOP
KD
PLL LOAD
POF
INT
RESET
X OUT
X IN
AUTO STOP FM: IC1 AM: IC3
AA-100 (41) HOLD
600Hz IC9 (6)
RESET RESET SW
T2 400KHz
AM 10K/9K
FM 100K/50K
3BAND/2BAND
D11
D13
D12
MANU-AL
AUTO
UP
FM AUTO
MONO
RANDOM
DOWN
MEMO
BAND
KEY PCB, FLD PCB
AA-R100 (40)
TR27
TR26
(LPF)
+30V
CONTROL VOLTAGE
FM/AM
FM IN
AM IN
FM LOCAL OSC
AM LOCAL OSC
+B AM/FM +B ON/OFF
TR23 to 25
AM
FM
AM IC IC3
FM FRONT END
TUNER PCB
Vcc
SIFT
Vout
VDD
POUT-I
PIN
DO-I
LOAD

Fig. 1-30 Block Diagram of AT-600 Peripheral (AA-R2?/L)

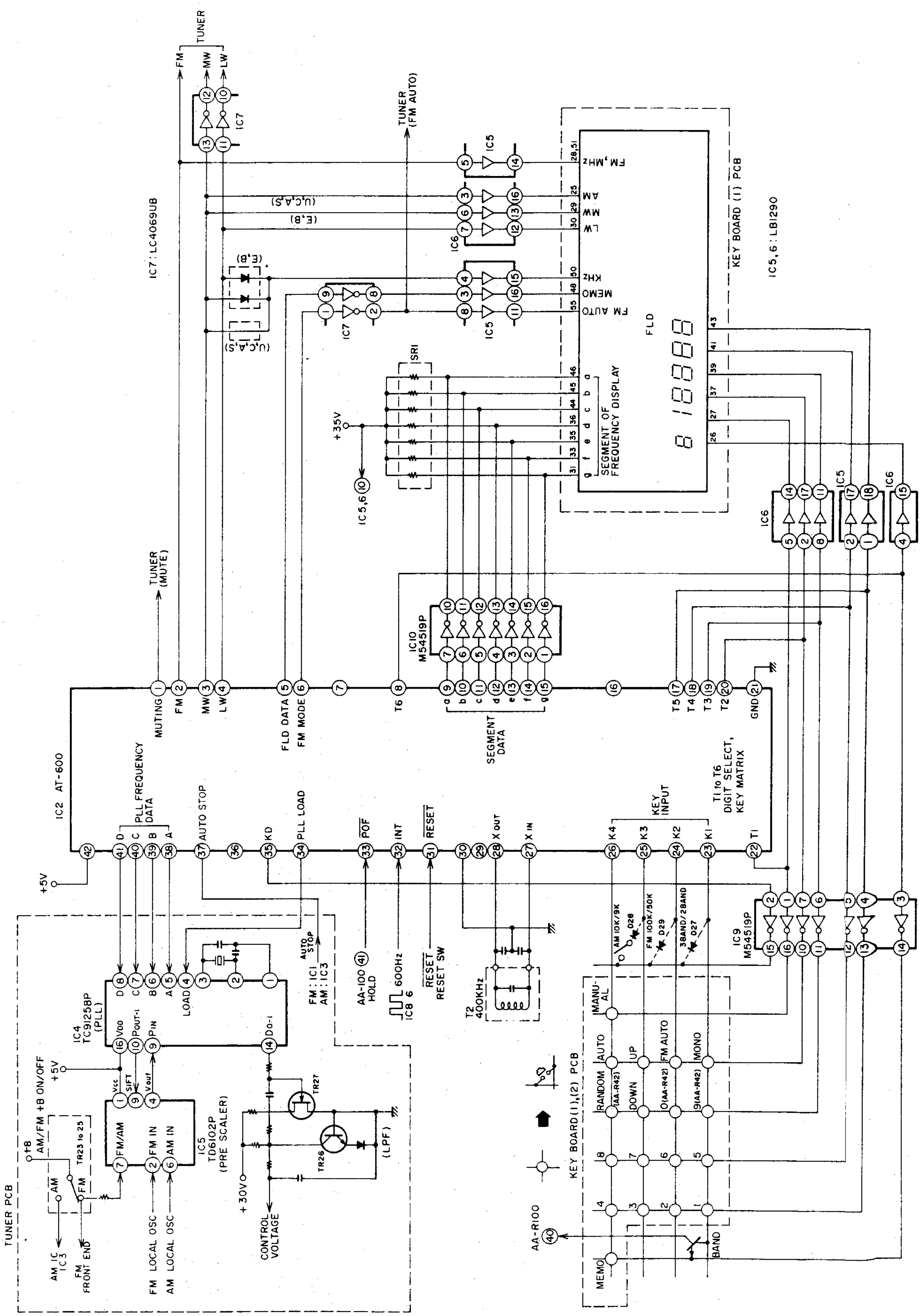
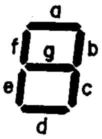

TUNER
FM
MW
LW
IC7
IC7 : LC4069UB
TUNER (FM AUTO)
IC5
IC6
FM, MHz
AM
MW
LW
KHz
MEMO
FM AUTO
(U,C,A,S)
(E,B)
FLD
SEGMENT OF FREQUENCY DISPLAY
KEY BOARD (1) PCB
IC5, 6 : LB1290
+35V
SR1
IC5,6 ⑩
IC10 M54519P
TUNER (MUTE)
IC2 AT-600
MUTING
FLD DATA
FM MODE
T6
SEGMENT DATA
T5
T4
T3
T2
GND
T1 to T6 DIGIT SELECT, KEY MATRIX
KEY INPUT
PLL FREQUENCY DATA
AUTO STOP
KD
PLL LOAD
POF
INT
RESET
X OUT
X IN
K4
K3
K2
K1
T1
+5V
IC4 TC9125BP (PLL)
LOAD
Vdd
Pout-1
Pin
Do-1
AUTO STOP
FM : IC1
AM : IC3
AA-100 ㊶ HOLD
600Hz IC8 6
RESET
RESET SW
T2 400KHz
IC9 M54519P
AM 10K/9K D28
FM 100K/50K D29
3BAND/2BAND D27
+B AM/FM +B ON/OFF
TR23 to 25
AM
FM
Vcc
SIFT
Vout
FM/AM
FM IN
AM IN
IC5 TD6102P (PRE SCALER)
TR27
TR26
(LPF)
+30V
CONTROL VOLTAGE
TUNER PCB
AM IC IC3
FM FRONT END
FM LOCAL OSC
AM LOCAL OSC
AA-R100
㊵
KEY BOARD (1),(2) PCB
MANUAL
AUTO
UP
FM AUTO
MONO
RANDOM (AA-R42)
DOWN
0 (AA-R42)
9 (AA-R42)
8
7
6
5
4
3
2
1
MEMO
BAND

Fig. 1-31 Block Diagram of AT-600 Peripheral (AA-R32/L, 42)

2. AT600 TERMINALS DESCRIPTION

No.	Terminal Description	Function
1	Muting	H = Muting OFF L = Muting ON
2	FM	H = FM L = MW (AM) or LW
3	MW	H = MW (AM) L = FM or LW
4	LW	H = LW L = FM or MW
5	FLD DATA	Light up the FLD of MANUAL SCAN, AUTO SCAN, MEMO
6	K1 SIGNAL (FM MODE)	H = FM MONO L = FM AUTO
7	K2 SIGNAL	unused
9	a	 Frequency Display, Preset Channel Segment Data
10	b	
11	c	
12	d	
13	e	
14	f	
15	g	
16		
8	T6	TIMING CONTROL Display Digit Select Key Matrix
17	T5	
18	T4	
19	T3	
20	T2	
22	T1	
21	GND	
23	K1	KEY Input Input . . . . . ACTIVE LOW
24	K2	
25	K3	
26	K4	
27	XIN	Connect a OSC Coil
28	XOUT	
29	CK	CAL TONE Signal
30	TEST	
31	$\overline{\text{RESET}}$	ACTIVE LOW → Reset
32	$\overline{\text{INT}}$	Interrupt Signal
33	$\overline{\text{POF}}$	Power OFF manage.
34	PLL LOAD	PLL Load Signal
35	KD	Lock SW input.
36	NC	
37	AUTO STOP	L = AUTO STOP
38	A	PLL Frequency Data
39	B	
40	C	
41	D	
42	VDD	Power terminal +5V

3. KEY MATRIX AND TIMING CHART OF SIGNAL FOR DISPLAY SELECTION BLANK PERIOD

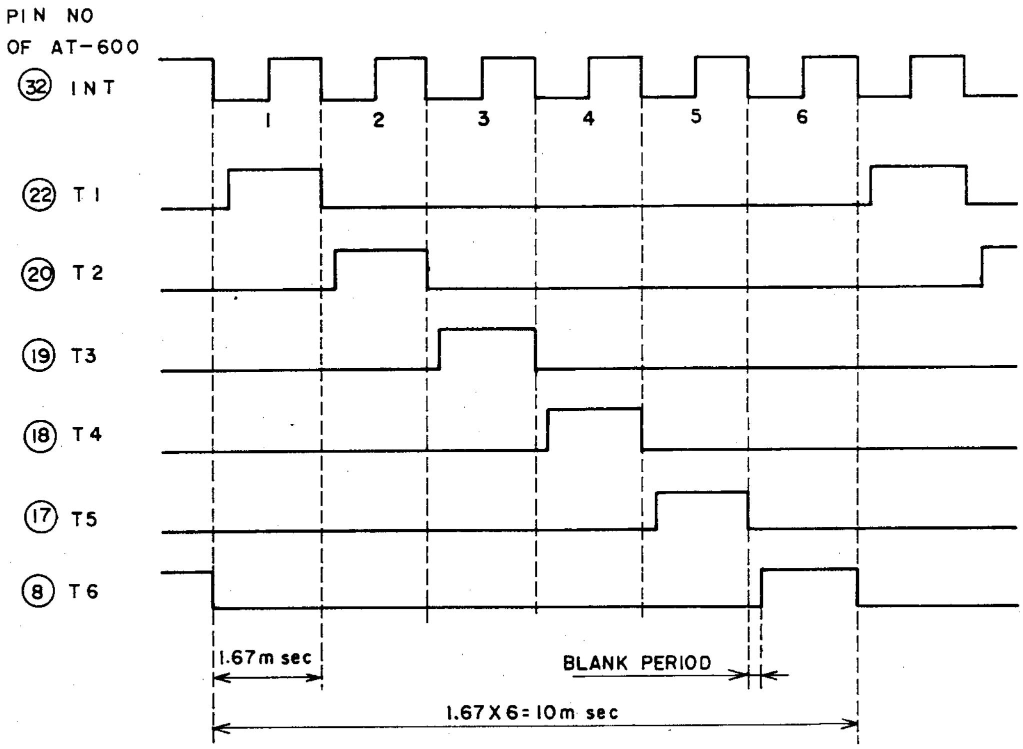

PIN NO
OF AT-600
㉜ INT
1
2
3
4
5
6
㉒ T1
⑳ T2
⑲ T3
⑱ T4
⑰ T5
⑧ T6
1.67m sec
BLANK PERIOD
1.67X6=10m sec

Fig. 1-32

4. FREQUENCY DISPLAY SEGMENT DATA (WHEN FREQUENCY IS 98.00 MHz)

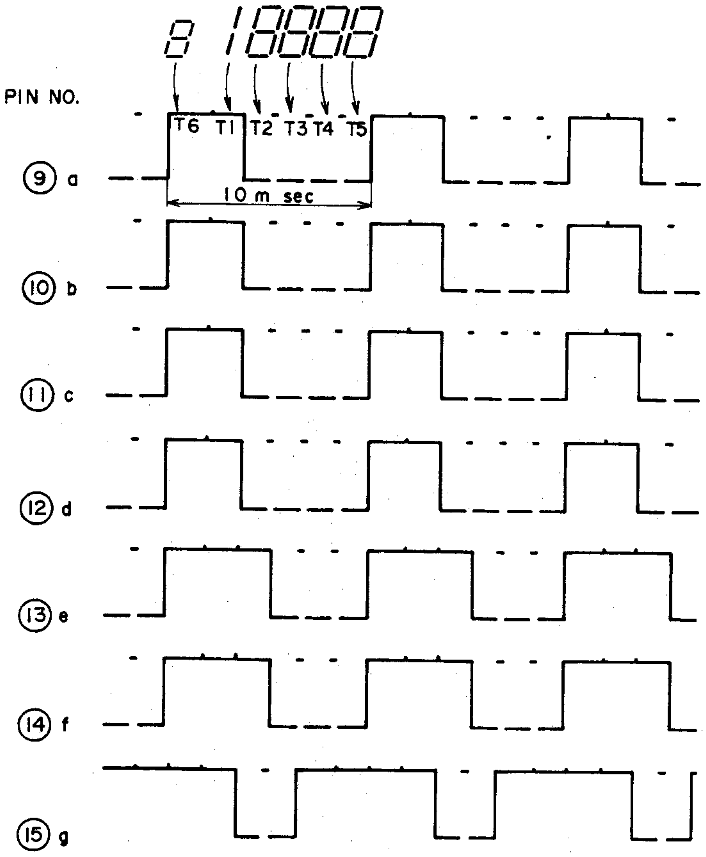

PIN NO.
T6
T1
T2
T3
T4
T5
10 m sec
⑨ a
⑩ b
⑪ c
⑫ d
⑬ e
⑭ f
⑮ g

Fig. 1-33

5. BLOCK DIAGRAM OF PLL IC TC9125P INTERIOR AND DESCRIPTION OF THE FUNCTION OF EACH TERMINAL

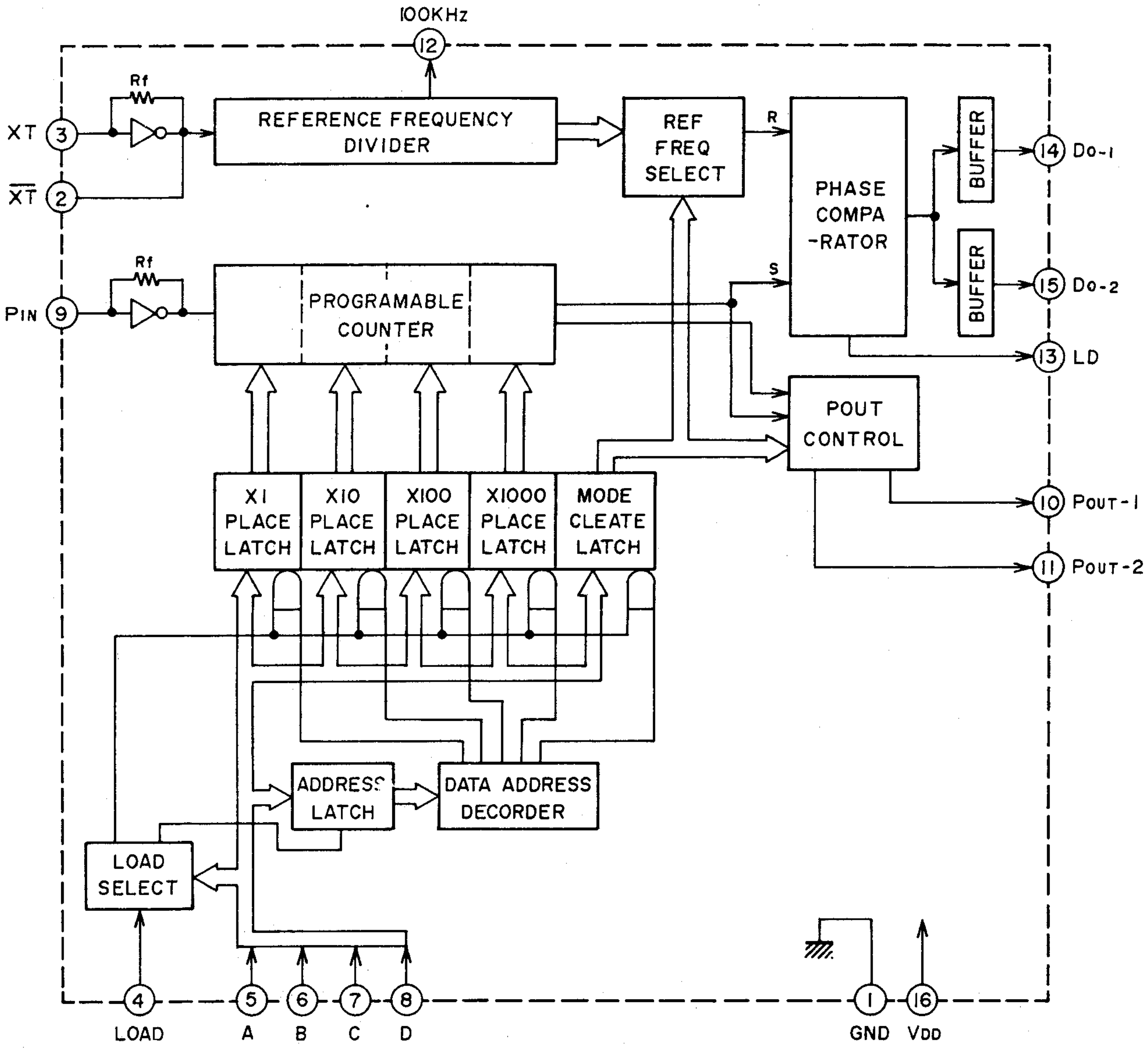

100KHz
12
Rf
XT
3
XT
2
REFERENCE FREQUENCY DIVIDER
REF FREQ SELECT
R
PHASE COMPA -RATOR
BUFFER
14
Do-1
BUFFER
15
Do-2
Rf
PIN
9
PROGRAMABLE COUNTER
S
13
LD
POUT CONTROL
X1 PLACE LATCH
X10 PLACE LATCH
X100 PLACE LATCH
X1000 PLACE LATCH
MODE CLEATE LATCH
10
POUT-1
11
POUT-2
ADDRESS LATCH
DATA ADDRESS DECORDER
LOAD SELECT
4
LOAD
5
A
6
B
7
C
8
D
1
GND
16
VDD

Fig. 1-34

Pin No.	Symbol	Designation of terminal	Description of functions and operations
1	GND	Earth terminal	
2 3	$\overline{XT}$ XT	Crystal oscillator connection terminal	Connection of 9.0MHz crystal oscillator.
4	LOAD	Load input terminal	Data reading instruction input terminal for A, B, C and D. Data is read when this terminal is at "H" level, but when at "L" level, the previous data is held regardless of other inputs.
5 6 7 8	A B C D	Program/data input terminals	Input terminal for reference frequency selection data and programmable counter division digit data.
9	PIN	Programmable counter input terminal	
10 11	POUT-1 POUT-2	Programmable counter output terminal	To be connected to the prescaler TD6102P for fine adjustment of IF frequency in FM or for 50 kHz shift in Europe. The signal of Pout-1 and Pout-2 is output at the point of different phase.
12	100 kHz	100 kHz clock output terminal	
13	LD	Lock-out detection terminal	"H" level when lock-out occurs.
14 15	Do-1 Do-2	Phase comparator output terminal	To be connected to low-pass filter.
16	VDD	Power terminal	+7 V

Fig. 1-35

6. PLL DATA FOR PLL IC (TC9125P) CONTROL

The data received from ㊳ to ㊶ of Micro-computer (IC2 AT-600) includes the mode data to select the reference frequency and to control the P out output, and the PLL data to determine the dividing factor of the programmable counter. This PLL data is added to the A to D terminals (⑤ to ⑧) of TC9125P. The data reading is controlled by tye load terminal (④), i.e. when the load terminal is at "H", the data from A to D is read into the latch, and when "L", no reading is done but the previous data is retained.
The PLL data is determined in the following manner.

FM:

PLL data = [received frequency + IF frequency] × 10

Example: 98MHz received.
PLL data = [98.0 + 10.7] × 10 = 1087

MW (AM):

$$\text{PLL data} = \frac{\text{Received frequency} + \text{IF frequency}}{\text{frequency change of 1 step}}$$

Example: 530 kHz received (10 kHz steps)

$$\text{PLL data} = \frac{530 + 460}{10} = 99$$

LW:

PLL data = received frequency + IF frequency

Example: 137 kHz received
PLL data = 137 + 459 = 596

PLL data values for received frequencies are as follows.

Band	Received frequency	Tuning 1 step	PLL data	IF frequency
FM	87.4 ~ 108.1 MHz	50/100 kHz	981 ~ 1188	10.7 MHz
MW_1	530 ~ 1610 kHz	10 kHz	99 ~ 208	460 kHz
MW_2	522 ~ 1611 kHz	9 kHz	109 ~ 230	459 kHz
LW	137 ~ 362 kHz	1/9 kHz	596 ~ 821	459 kHz

Fig. 1-36 PLL Data

MODE data values are as follows.

Band	Tuning 1 step	Mode data
FM	100 kHz	4
FM	50 kHz	5
MW_1	10 kHz	3
MW_2	9 kHz	2
LW	1 kHz	0

Fig. 1-37 Mode Data

The PLL data and MODE data are received in the following way and added to A to D or TC9125P.

Example: FM 108MHz (100kHz steps) received:
PLL data = (108 + 10.7) x 10 = 1187
MODE data = 4

The each figure of PLL data is converted into binary code of 4 bits (A = LSB, D = MSB).
The MODE data is converted into binary code of 3 bits (A = LSB, C = MSB, D = O).
In order to determine to which latch in TC9125 the above data should be set, the data that designates the address is input first.

The address is determined in the following manner.

Latch	x1 Place	x10 Place	x100 Place	x1000 Place	Mode cleate
Address	F = 11	F = 12	F = 13	F = 14	F = 15

$F = 1\cdot A + 2\cdot B + 4\cdot C + 8\cdot D$ (A, B, C, D = 1 or 0)

Fig. 1-38 Address Data

If F = 11 is set, $F = 1\times1+2\times1+4\times0+8\times1 = 11$, and A, B, C and D will be 1, 1, 0, and 1 respectively. Each

PLL data value is sent together with the data designating the address and set to the latch.

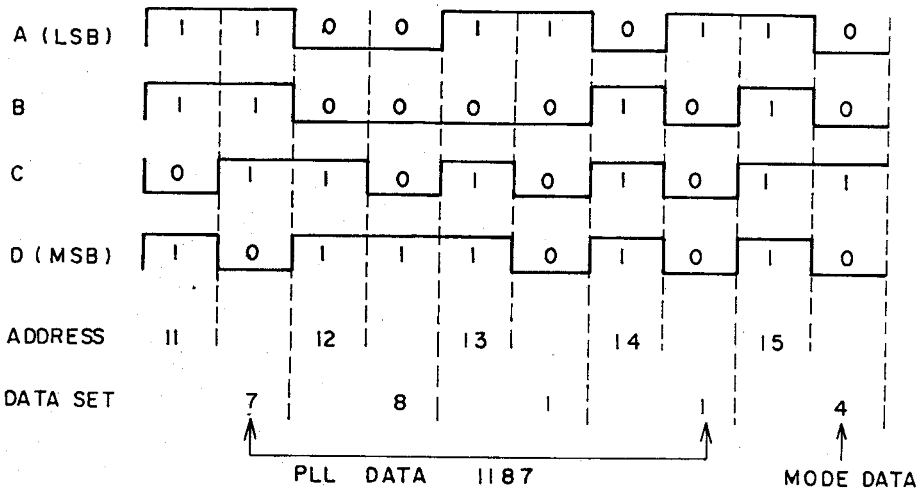

A (LSB)
B
C
D (MSB)
ADDRESS
11
12
13
14
15
DATA SET
7
8
1
1
4
PLL DATA 1187
MODE DATA

Fig. 1-39 PLL Data Transfer

7. FREQUENCY CONTROL BY PLL

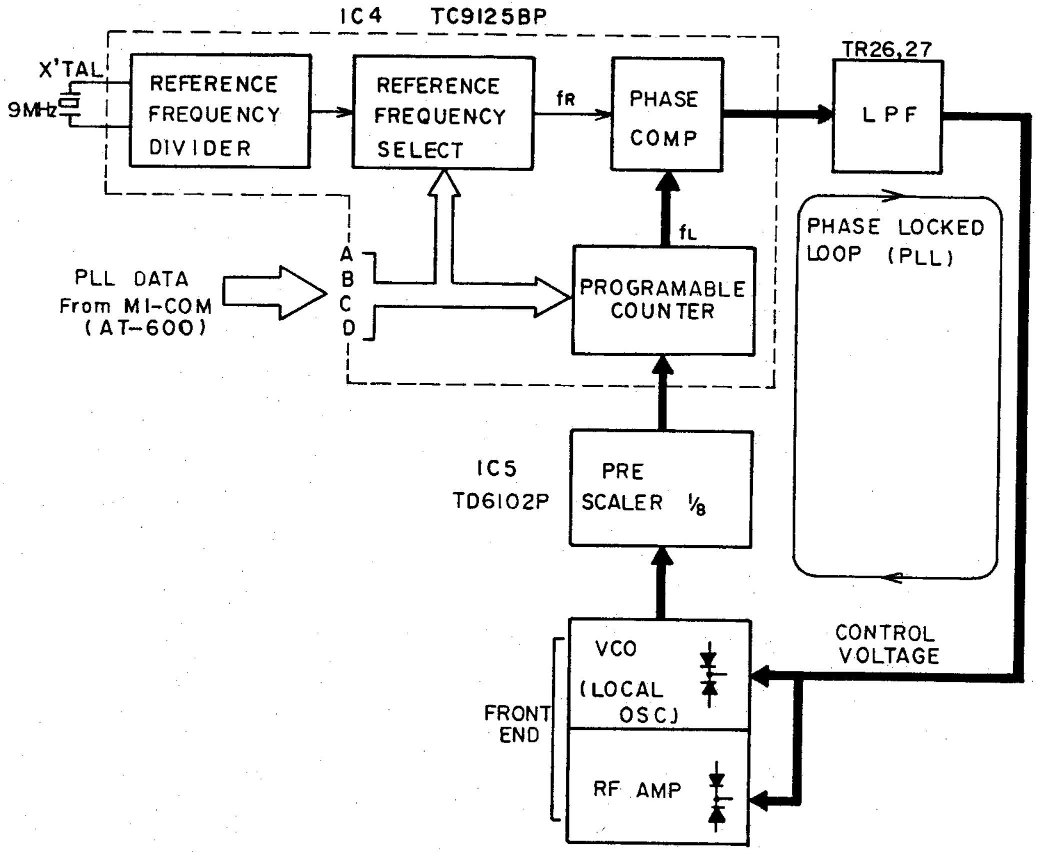

IC4 TC9125BP
X'TAL
9MHz
REFERENCE FREQUENCY DIVIDER
REFERENCE FREQUENCY SELECT
fR
PHASE COMP
TR26,27
LPF
fL
PHASE LOCKED LOOP (PLL)
PLL DATA From MI-COM (AT-600)
A
B
C
D
PROGRAMABLE COUNTER
IC5 TD6102P
PRE SCALER 1/8
VCO (LOCAL OSC)
CONTROL VOLTAGE
FRONT END
RF AMP

Fig. 1-40 Control of received frequency

The signal from the reference frequency divider and the signal from the VCO (local osc.) are divided by the dividing factor determined by the PLL data, to become f_R and f_L respectively. The phase comparator compares the frequency and phase of the frequencies f_R and f_L. If f_L is delayed in phase relative to f_R, "L" is output and if f_L is advanced relative to f_R, "H" is output. The output passes through the LPF (low pass filter) and by changing the inverse voltage of the varactor diodes in VCO (local OSC.) and RF amplifier, the tuning frequency is controlled.

IV. AKAI ZERO DRIVE CIRCUIT (AA-R42/R32)

1. IN THE BEGINNING:

Many techniques concerned with negative feedback (NF) such as NON NFB, low feedback amplifier, super FF, linear feedback and pure NF have been much talked about in the world of audio. All these techniques were developed to compensate for the drawbacks and imperfections of NF. At the present, NF has the following problems:

1) Theoretically, zero distortion is impossible.
2) Phase compensation is necessary for high frequency stability.
3) Due to above, NF value is reduced at high frequencies and thus distortion rate at high frequencies is increased. Such distortions as switching and cross-over distortions cannot be completely eliminated.
4) Back electromotive force from the speakers is fed back to the input side through the NF circuit, thus producing Interface Intermodulation (IIM) distortion.
5) There is a danger of adversely affecting the dynamic characteristics.

Consequently, it is impossible to talk about today's audio amplifiers without thinking in terms of NF, as it cannot be completely ignored. NF is an innovative technique and Akai believes that more efforts should be applied and a more technical approach is needed to eliminate its drawbacks and to take advantage of its merits. With this in mind, Akai decided on the following conditions when designing the new circuit.

1) Effective distortion correction without increasing feedback value.
2) Be effective and stable at high frequencies, so it must be based on the principle of error correction and not NF technique.
3) Nothing must be added or taken away from the original signal components.
4) Supplementary to conventional circuits without extensive changes.
5) Complete suppression of IIM distortion.

2. PRINCIPLE OF AKAI ZERO DRIVE CIRCUIT

2-1. NF OPERATION OF A CONVENTIONAL AMPLIFIER

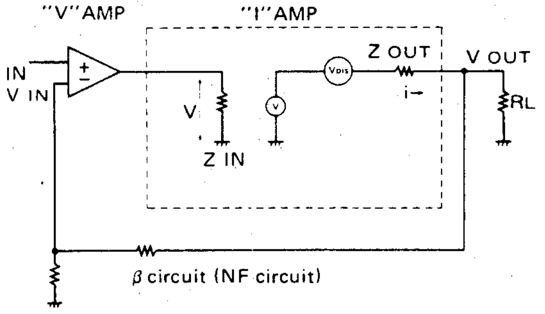


Fig. 1-41

For convenience, the main amplifier was divided into two sections: the "V" AMP section for amplifying voltage, and the "I" AMP section for amplifying current. For explantion, circuit equivalent to the "I" AMP is shown in Fig. 1-41. Thanks to the improvements in the characteristics of component parts and to circuit technology, it is now possible to design a "V" AMP having quite good characteristics. However, still to be overcome is the problem of nonlinear distortion of component parts due to switching and crossover distortions and the circuit's wide operating range.

Despite much effort to resolve all these problems by improving the characteristics of component parts and creation of new circuit technology (such as non-switching), the ultimate goal still remained unattained. Beside this, the problem has been raised of such distortion as IIM distortion which results when a part of the speaker's back electromotive force is mixed with the input signal through the β circuit (NF circuit). There are still many problems with "I" AMP.

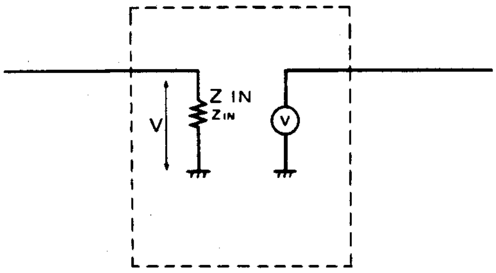


Fig. 1-42

An ideal "I" AMP without these problems is shown in Fig. 1-42. It successfully accomplishes zero output impedance and zero distortion.

1) How the circuit in Fig. 1-41 operates

The "I" AMP produces on the output side a voltage equivalent to the voltage V supplied by the "V" AMP to the input side. At the same time, V OUT due to the voltage of distortion component (V DIS) and the reduced voltage of output impedance (Z OUT) is equated as:

$$V_{OUT} = V - (V_{DIS} + Z_{OUT}\, i) \quad \dots\dots\dots \quad (1)$$

where:

V is the component equal to the input signal, and (V_{DIS} + Z_{OUT} i) is the voltage due to distortion and output impedance or otherwise called composite distortion.

Since this is in fact an NF circuit, component which cancel this composite distortion is fed back to the input side, thus reducing distortion rate.

When:

A = amplifier open loop gain
β = gain of the amplifier
NF = value of the negative feedback

$$NF = A/\beta \quad \dots\dots\dots\dots\dots\dots\dots \quad (2)$$

V is then expressed as:

$$V = \beta V\text{ in} + \frac{NF}{NF+1}(V_{DIS} + Z_{OUT}\, i) \;\ldots\ldots\; (3)$$

From (1) and (3), final output is given as:

$$V_{OUT} = \beta V\text{ in} + \frac{1}{NF+1}(V_{DIS} + Z_{OUT}\, i) \ldots\; (4)$$

From (4), the input signal is magnified β times for a conventional amplifier and distortion and output impedance becomes $1/(NF + 1)$.

2-2. ABSORPTION OF SPEAKERS BACK ELECTROMOTIVE FORCE IN A CONVENTIONAL AMPLIFIER

(For simplification, V_{DIS} was omitted.)

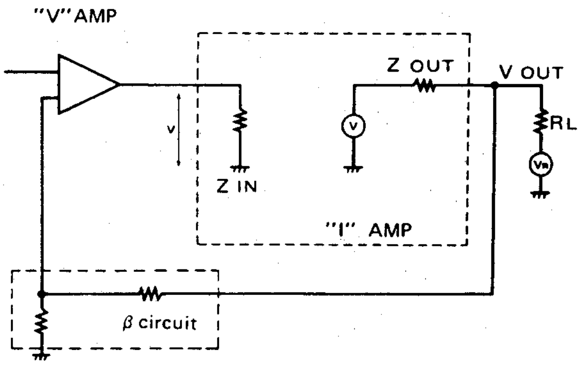


Fig. 1-43

Fig. 1-43 shows a circuit equivalent to a speaker which produces back electromotive force with RL and back electromotive force VR in a series circuit. At this time, the amplifier produces inverted phase voltage through the NF circuit to absorb the VR but not completely. The residual voltage is:

$$V_{OUT} = \frac{V_R\, Z_{OUT}}{R + \frac{NF}{NF+1} Z_{OUT}} \cdot \frac{1}{NF+1}$$

$$\left(\doteqdot - \frac{V_R\, Z_{OUT}}{R + Z_{OUT}} \cdot \frac{1}{NF}\right) \;\ldots\ldots\ldots\; (5)$$

This voltage is fed back to the previous amp stage through the β circuit, magnified "–NF" times,

$$V' = -\frac{V_R\, Z_{OUT}}{R + \frac{NF}{NF+1} Z_{OUT}} \cdot \frac{NF}{NF+1}$$

$$\left(\doteqdot - \frac{V_R\, Z_{OUT}}{R + Z_{OUT}}\right) \;\ldots\ldots\ldots\ldots\; (6)$$

and input to the "I" AMP.
The point that should be noted here is that, as can be seen in (5), complete absorption cannot be obtained. The residual voltage mixes with the input signal through the β circuit, resulting in IIM distortion. Thus the drawback of conventional amplifiers can be readily seen.

2-3. OPERATION OF AKAI ZERO DRIVE CIRCUIT

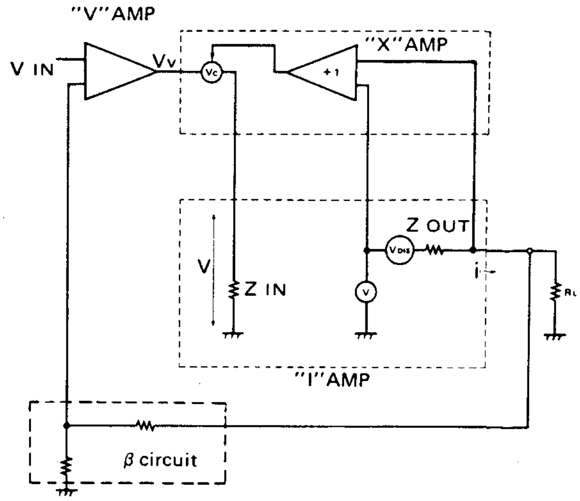


Fig. 1-44

As shown in Fig. 1-44, Akai's zero drive circuit detects the composite distortion of V_{DIS} and $Z_{OUT}\, i$ by means of a differential amplifier "X" with a gain of 1 and by the principle of error correction, following is added between "I" AMP and the "V" AMP.

$$V_C = V_{DIS} + Z_{OUT}\, i \;\ldots\ldots\ldots\ldots\; (7)$$

Writing (3) once more:

$$V_{OUT} = V - (V_{DIS} + Z_{OUT}\, i) \;\ldots\ldots\ldots\; (3)$$

where V is:

$$\begin{aligned} V &= V_V + V_C \\ &= V_V + (V_{DIS} + Z_{OUT}\, i) \;\ldots\ldots\ldots\; (8) \end{aligned}$$

From (3) and (8):

$$V_{OUT} = V_V \;\ldots\ldots\ldots\ldots\; (9)$$

Therefore:

$$V_V = \beta V\text{ in} \;\ldots\ldots\ldots\ldots\; (10)$$

$$V_{OUT} = \beta V\text{ in} \;\ldots\ldots\ldots\ldots\; (11)$$

Thus, as seen in (11), adding a zero drive circuit produces an ideal amplifier with zero distortion and zero output impedance. Although, in actual fact, zero cannot be achieved due to the degree of precision of the parts used in the error correction circuit. However, level of 1/100 (= −40 dB) can be easily attained. As Akai's zero drive circuit completely compensates for the drawbacks of general amplifiers, distortions such as switching and crossover distortion are eliminated for all practical purposes. Also, as zero output impedance is achieved, back electromotive force is prevented completely from interferring with the negative feedback circuit and thus IIM distortion is prevented. As for IIM, it operates in the same manner as the non-feedback amplifier.

Present NF Problems	Zero Drive Circuit Advantages
1. Zero distortion impossible.	1. Distortion correction effect without amplifying feedback value.
2. NF value decreases due to prevention of oscillation and circuit for phase compensation. Thus such distortions as switching and cross-over distortions can not be completely removed.	2. As it is based on the principle of error correction which is different from NF, it is stable and effective at high frequencies.
3. Back electromotive force from the speakers returns to the input side through the NF producing IIM distortion.	3. Suppresses completely the IIM distortion because as the output impedance is zero there is no interference with the NF circuit by the speaker's back electromotive force.
4. Danger of adversely affecting the dynamic characteristics.	4. Dynamic characteristics are not adversely affected.

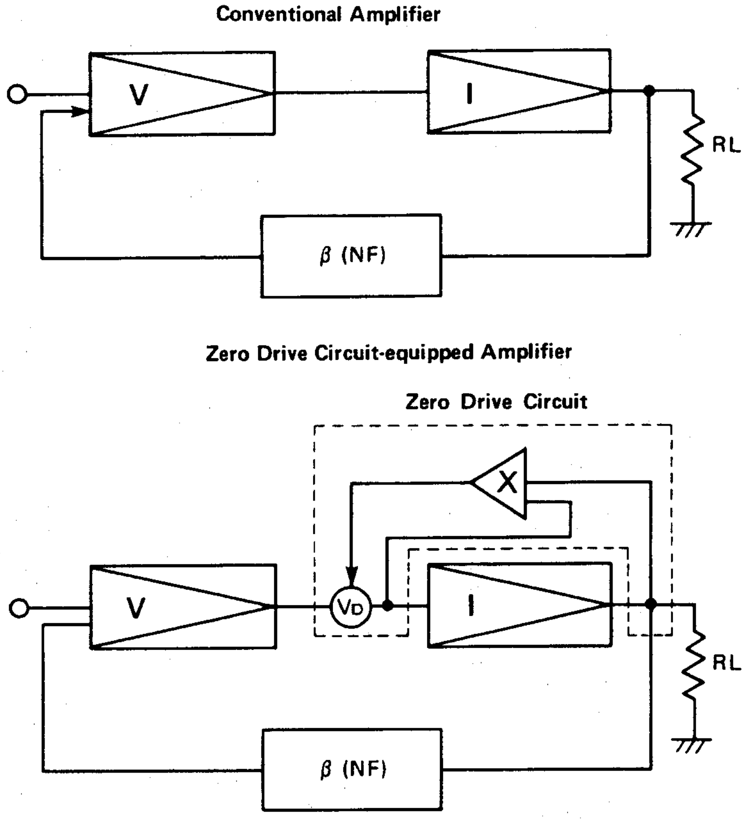


Fig. 1-45

	Output Impedance	Distortion Factor
Conventional "I" Amp	Z	D
Conventional "I" Amp+NF	Z/1+β	D/1+β
Ideal "I" Amp	O	O
"I" Amp equipped with Zero Drive Circuit	O	O

V. DUAL-POLE DC SERVO (AA-R42/R32/R22)

A Dual-Pole DC Servo circuit has been employed which further improves the characteristics of the DC amplifier. The Dual-Pole DC Servo, by making the structural components of the integrated circuit in the servo loop Dual-Pole type, namely, dual integrated construction, greatly reduces distortion approximately 40 dB (1/100) and since a servo which has a high purity DC component is applied, the amplification stability of the amplifier is increased and music signals can be more distinctly realized.

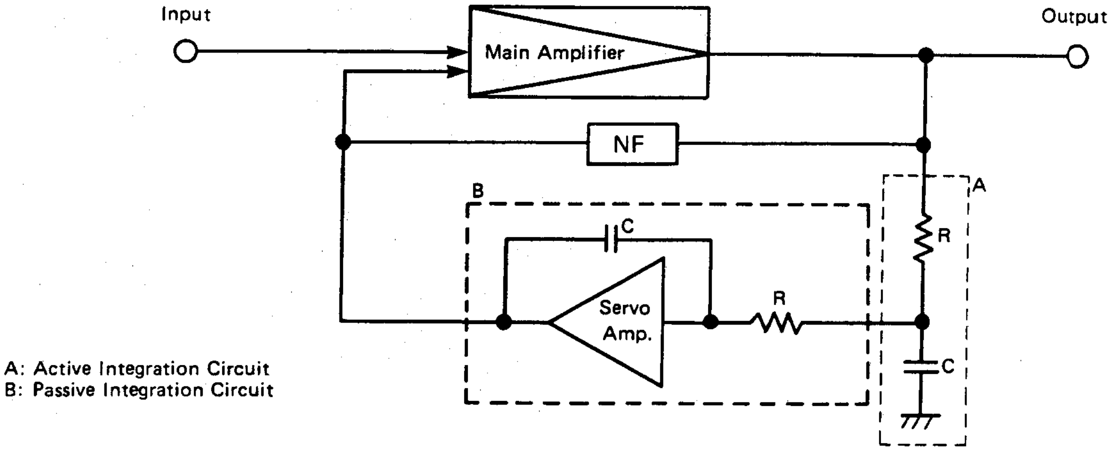
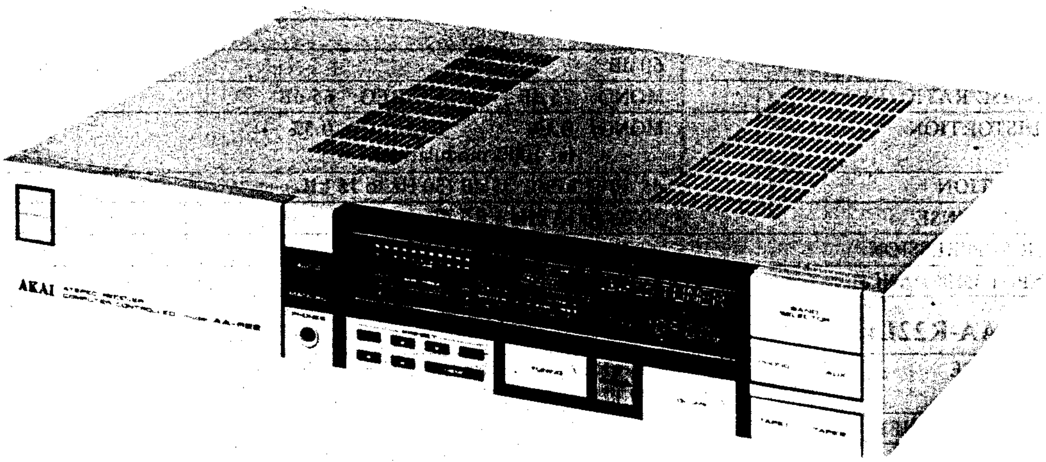

Input
Main Amplifier
Output
NF
B
A
C
R
Servo
Amp.
R
C
A: Active Integration Circuit
B: Passive Integration Circuit

Fig. 1-46



SECTION 2

SERVICE MANUAL

MODEL AA-R22/L

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. SPECIFICATIONS

FM TUNER SECTION

FREQUENCY RANGE	87.4 MHz to 108.1 MHz
USABLE SENSITIVITY (30 dB) (IHF)	11.2 dBf
50 dB QUIETING SENSITIVITY (IHF)	16.2 dBf (MONO) 37.2 dBf (STEREO)
CAPTURE RATIO	1.5 dB
SELECTIVITY (IHF)	60 dB
IMAGE REJECTION	85 dB
IF REJECTION	90 dB
SPURIOUS REJECTION	90 dB
AM SUPPRESSION	60 dB
SIGNAL TO NOISE RATIO (IHF)	MONO: 75 dB STEREO: 65 dB
HARMONIC DISTORTION	MONO: 0.1% STEREO: 0.3% (at 100% modulation)
STEREO SEPARATION	45 dB (1 kHz), 35 dB (30 Hz to 15 kHz)
FREQUENCY RESPONSE	30 Hz to 12 kHz ± 0.5 dB
SUB CARRIER SUPPRESSION	60 dB
ANTENNA INPUT IMPEDANCE	300 ohms balanced, 75 ohms unbalanced

AM (MW for AA-R22L) TUNER SECTION

FREQUENCY RANGE	530 kHz to 1610 kHz (for 10 kHz steps) 522 kHz to 1611 kHz (for 9 kHz steps)
USABLE SENSITIVITY (IHF)	300 μV/m
SELECTIVITY (IHF)	30 dB
IMAGE REJECTION	40 dB
IFF REJECTION	55 dB
SIGNAL TO NOISE RATIO	40 dB
ANTENNA	Built in Loop Antenna

LW TUNER SECTION (AA-R22L only)

FREQUENCY RANGE	137 kHz to 362 kHz
USABLE SENSITIVITY (IHF)	800 μV/m
SELECTIVITY (IHF)	35 dB
IMAGE REJECTION	45 dB
IF REJECTION	55 dB
SIGNAL TO NOISE RATIO	35 dB
ANTENNA	Built in Loop Antenna

AMPLIFIER SECTION

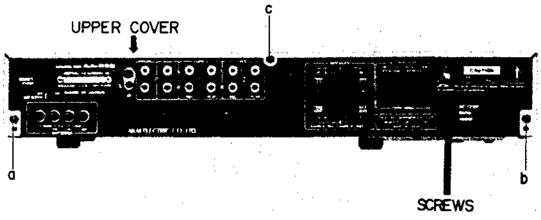
RATED POWER OUTPUT (2-channel Driven)	30 watts per channel, minimum RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.05% total harmonic distortion.
POWER BANDWIDTH (IHF)	5 Hz to 40 kHz/8 ohms (Total harmonic distortion 0.1%)
SIGNAL TO NOISE RATIO	PHONO: 75 dB AUX/TAPE: 98 dB
CHANNEL SEPARATION (IHF)	PHONO: 50 dB (1 kHz) AUX/TAPE: 50 dB (1 kHz)
DAMPING FACTOR	more than 30 (1 kHz, 8 ohms)
INPUT SENSITIVITY/IMP	PHONO: 2.5 mV/100 kohms AUX/TAPE: 150 mV/47 kohms
OUTPUT LEVEL/IMP	TAPE REC: 150 mV/3 kohms
FREQUENCY RESPONSE	PHONO: 30 Hz to 15 kHz ± 0.5 dB (RIAA) AUX/TAPE: 5 Hz to 80 kHz – 3 dB
TONE CONTROL	BASS: ±8 dB (100 Hz) TREBLE: ±8 dB (10 kHz)
SPEAKERS	A, B (4 to 16 ohms)/A + B (8 to 16 ohms)
POWER REQUIREMENTS	120V, 60 Hz for USA & Canada 220V, 50 Hz for European countries except UK 240V, 50 Hz for UK & Australia 110V/120V/220V/240V, 50/60 Hz switchable for other countries
DIMENSIONS	440(W) x 70(H) x 290(D) mm (17.3 x 2.8 x 11.4 inches)
WEIGHT	6 kg (13.2 lbs)

*** For improvement purposes, specifications and design are subject to change without notice.**

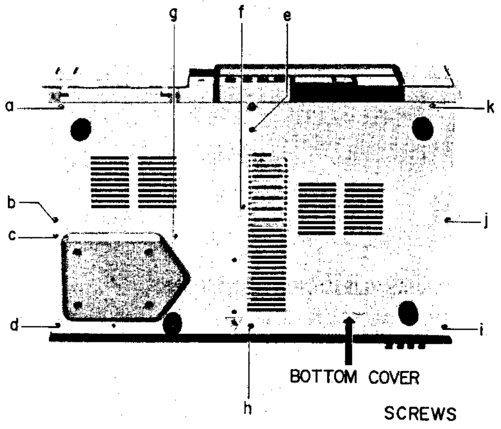
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

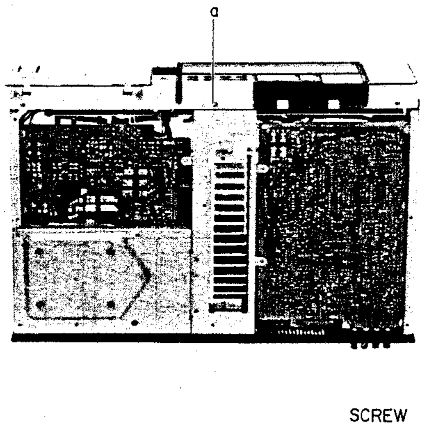
1


c
UPPER COVER
a
b
SCREWS

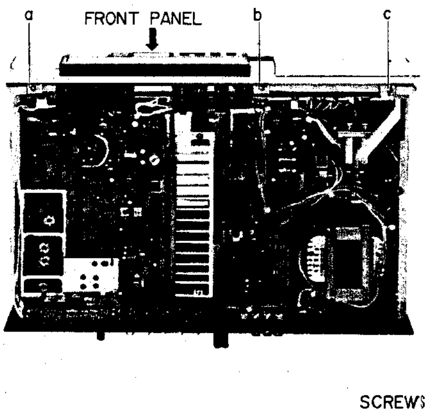
2


g
f
e
a
k
b
c
j
d
i
BOTTOM COVER
h
SCREWS

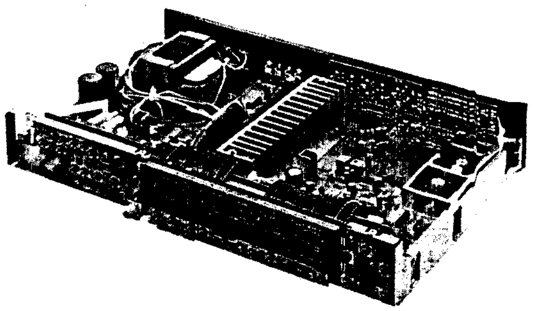
3



4


a
FRONT PANEL
b
c
SCREWS

5



III. CONTROLS

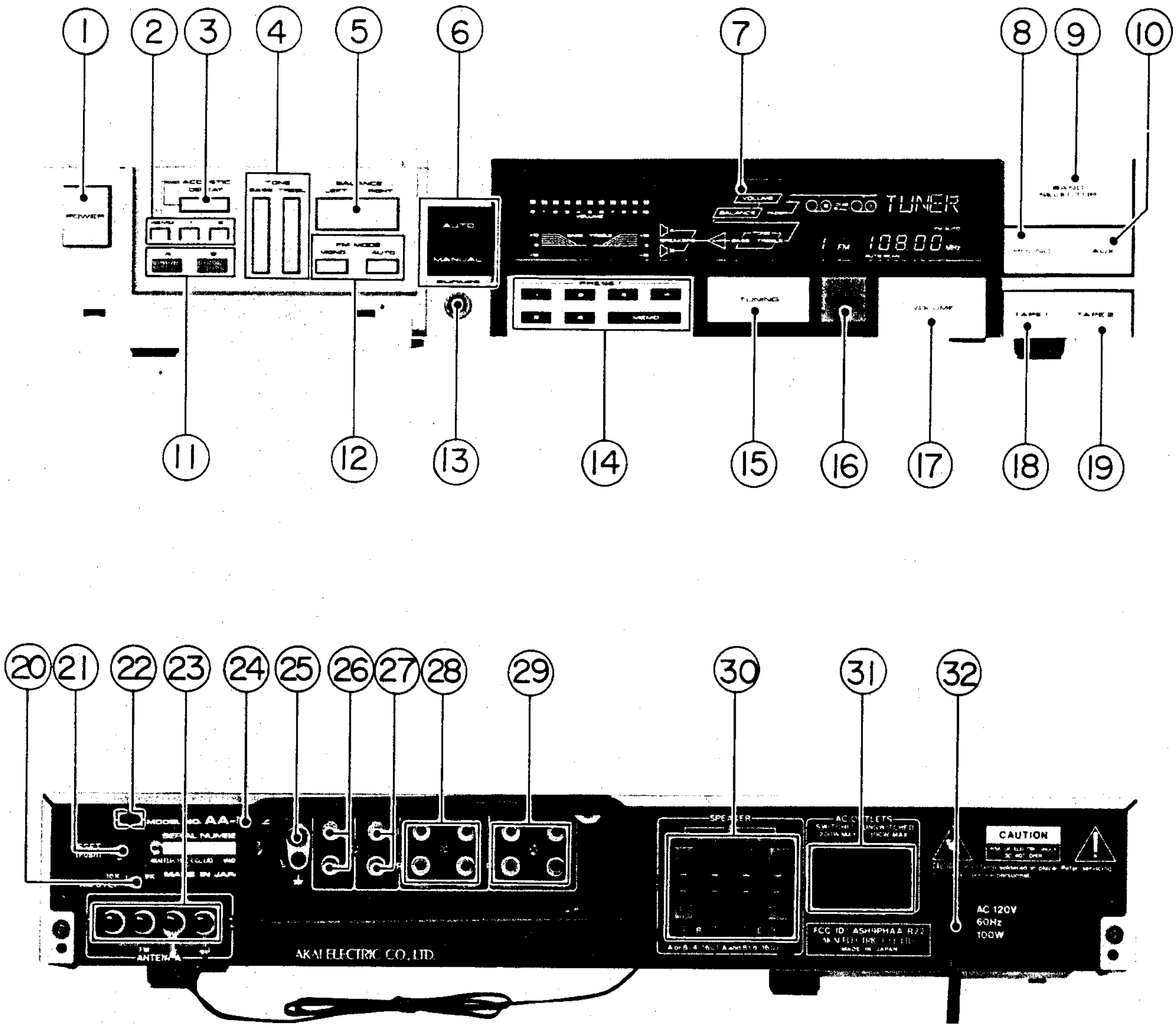

1
2
3
4
5
6
7
8
9
10
POWER
TONE
BASS TREBLE
BALANCE
LEFT RIGHT
FM MODE
MONO AUTO
AUTO
MANUAL
VOLUME
BALANCE
TUNER
108.00
PHONO
AUX
PRESET
MEMO
TUNING
VOLUME
TAPE 1
TAPE 2
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
RESET
MODEL NO. AA-
SERIAL NUMBER
MADE IN JAPAN
FM
ANTENNA
AKAI ELECTRIC CO., LTD.
SPEAKER
AC OUTLETS
CAUTION
AC 120V
60Hz
100W

Fig. 2-1 Controls

1. POWER SWITCH
2. ACOUSTIC MEMORY BUTTONS
3. DEFEAT BUTTON
4. BASS AND TREBLE CONTROL
5. BALANCE CONTROL
6. TUNING MODE SELECTOR
7. FL DISPLAY
8. PHONO BUTTON
9. BAND SELECTOR
10. AUX BUTTON
11. SPEAKER SELECTOR
12. FM MODE SELECTOR
13. PHONES JACK
14. PRESET STATION BUTTON
15. TUNING (UP/DOWN) BUTTON
16. FADER BUTTON
17. VOLUME (UP/DOWN) BUTTON
18. TAPE 1 BUTTON
19. TAPE 2 BUTTON
20. AM STEP SELECTOR (Not on some models)
21. RESET BUTTON
22. FM DE-EMPHASIS SELECTOR (Not on some models)
23. ANTENNA TERMINALS
24. AM LOOP ANTENNA
25. GROUND TERMINAL
26. PHONO JACKS
27. AUX JACKS
28. TAPE 1 REC/PLAY JACKS
29. TAPE 2 REC/PLAY JACKS
30. A AND B SPEAKER SYSTEM TERMINALS
31. AC OUTLETS (Not on some models)
32. POWER CORD

IV. PRINCIPAL PARTS LOCATION

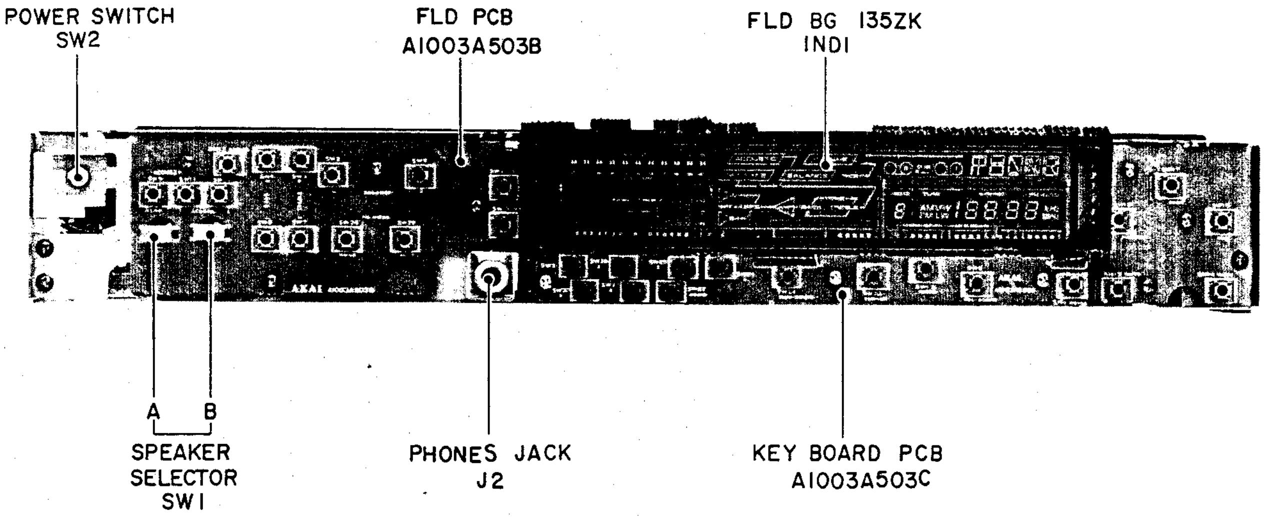

POWER SWITCH
SW2
FLD PCB
A1003A503B
FLD BG 135ZK
INDI
A B
SPEAKER
SELECTOR
SW1
PHONES JACK
J2
KEY BOARD PCB
A1003A503C

Fig. 2-2 Front View

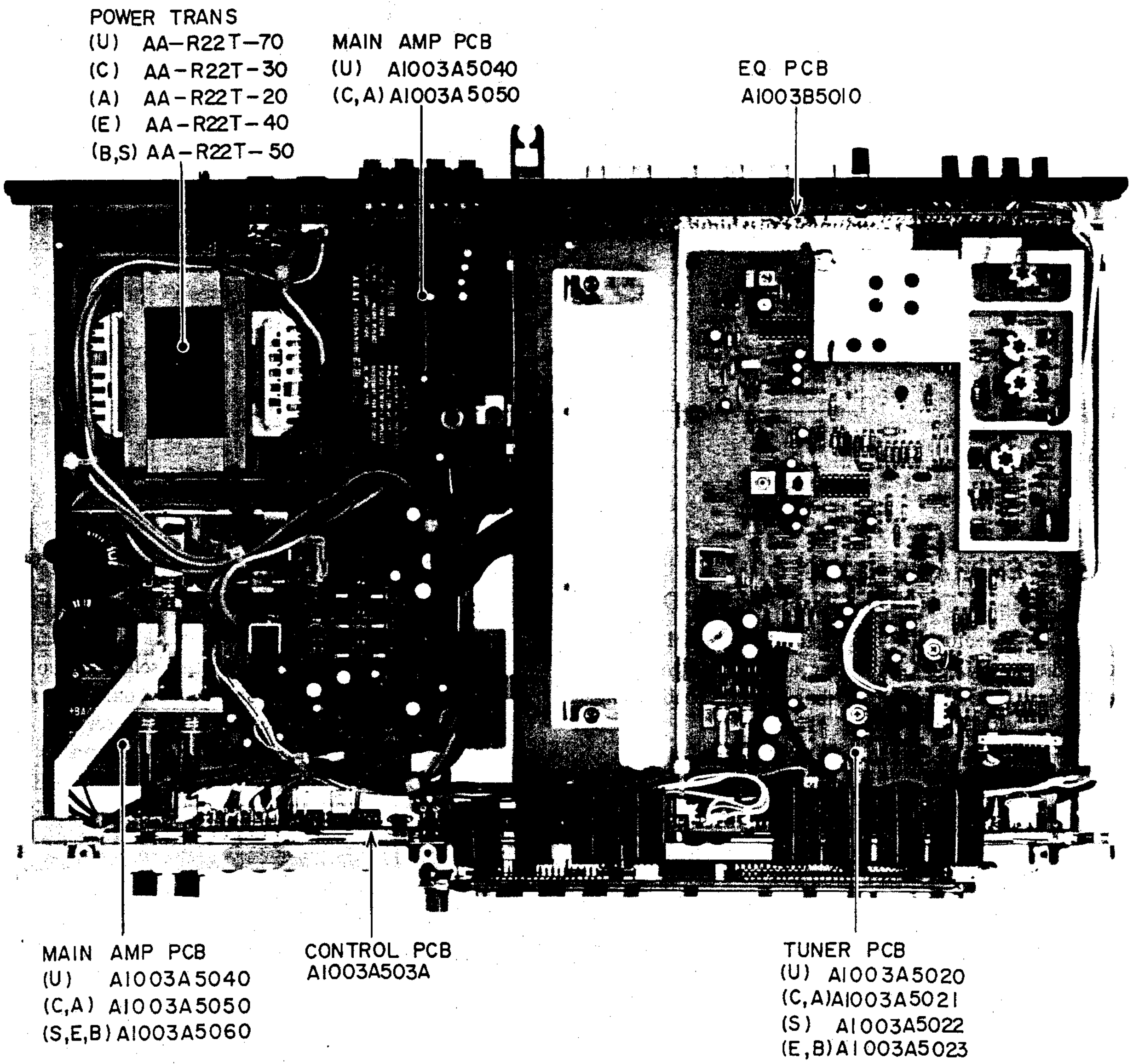

POWER TRANS
(U) AA-R22T-70
(C) AA-R22T-30
(A) AA-R22T-20
(E) AA-R22T-40
(B,S) AA-R22T-50
MAIN AMP PCB
(U) A1003A5040
(C,A) A1003A5050
EQ PCB
A1003B5010
MAIN AMP PCB
(U) A1003A5040
(C,A) A1003A5050
(S,E,B) A1003A5060
CONTROL PCB
A1003A503A
TUNER PCB
(U) A1003A5020
(C,A)A1003A5021
(S) A1003A5022
(E,B)A1003A5023

Fig. 2-3 Top View

V. CONVERSION

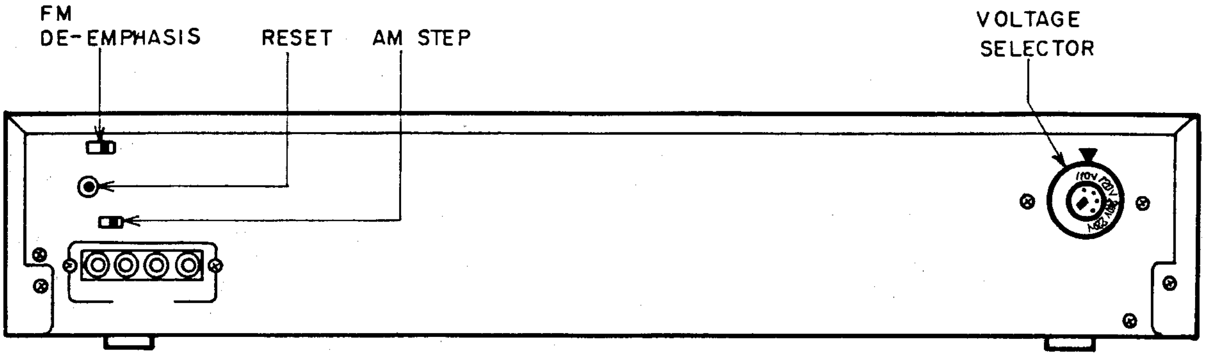

FM
DE-EMPHASIS
RESET
AM STEP
VOLTAGE
SELECTOR
110V
120V
220V
240V

Fig. 2-4 Rear View

1. VOLTAGE CONVERSION

Models for Canada, USA and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.

If your machine's voltage can be converted:

1) Disconnect the power cord from the power supply.
2) Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.

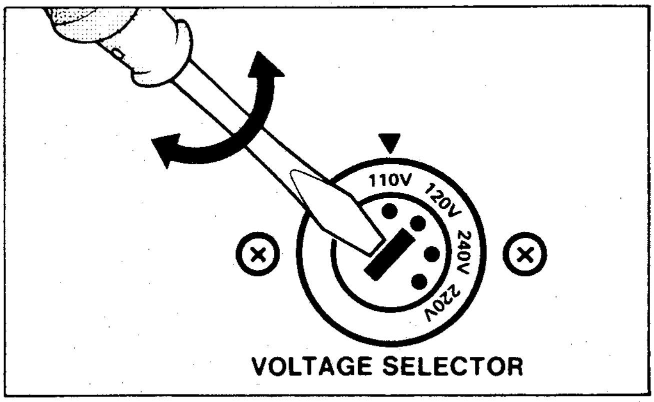

110V
120V
240V
220V
VOLTAGE SELECTOR

Fig. 2-5

2. FM DE-EMPHASIS SELECTOR (NOT ON SOME MODELS.)

Use this selector to de-emphasize an FM signal encoded with Dolby NR by an amount (50 μs or 75 μs) equal to the emphasis made at the broadcasting station.
Set this selector accordng to your area.

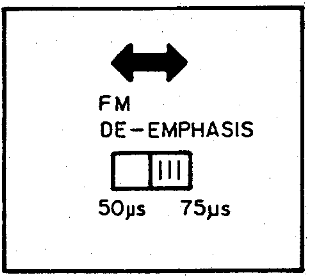

FM
DE-EMPHASIS
50μs
75μs

Fig. 2-6

3. AM STEP SELECTOR (NOT ON SOME MODELS.)

The Akai AA-R22 can scan the AM frequencies in steps of 9 kHz or 10 kHz. Set this selector according to the broadcasting frequencies in your area. After setting the AM STEP selector, turn on the Akai AA-R22 and then depress the RESET button.

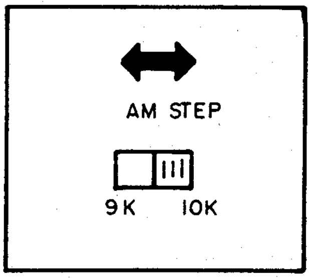

AM STEP
9K
10K

Fig. 2-7

VI. ADJUSTMENTS

1. CLOCK FREQUENCY ADJUSTMENT (Refer to Fig. 2-8)

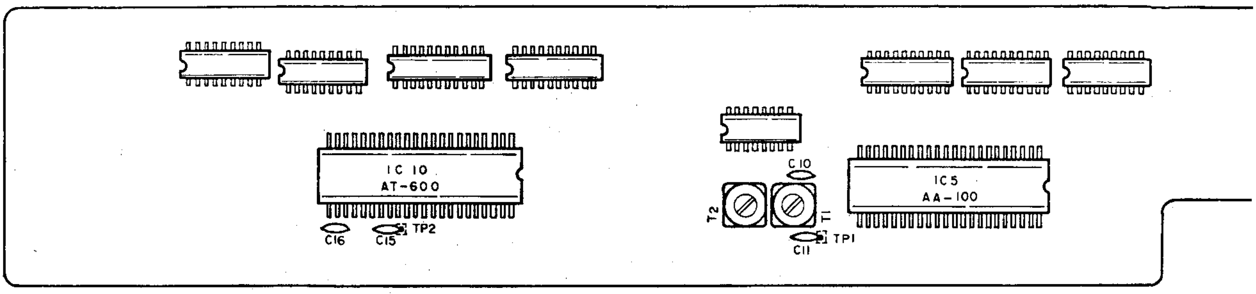

IC 10
AT-600
C16
C15
TP2
C10
T2
T1
C11
TP1
IC5
AA-100

Fig. 2-8 Control PCB

1) Connect a Frequency Counter to TP1 (TP2).
2) Confirm that Frequency Counter reading is 400 kHz ~ 430 kHz.
3) Adjust T1 (Frequency of TP1) or T2 (Frequency of TP2), if adjustment is necessary.

2. TUNER ADJUSTMENT

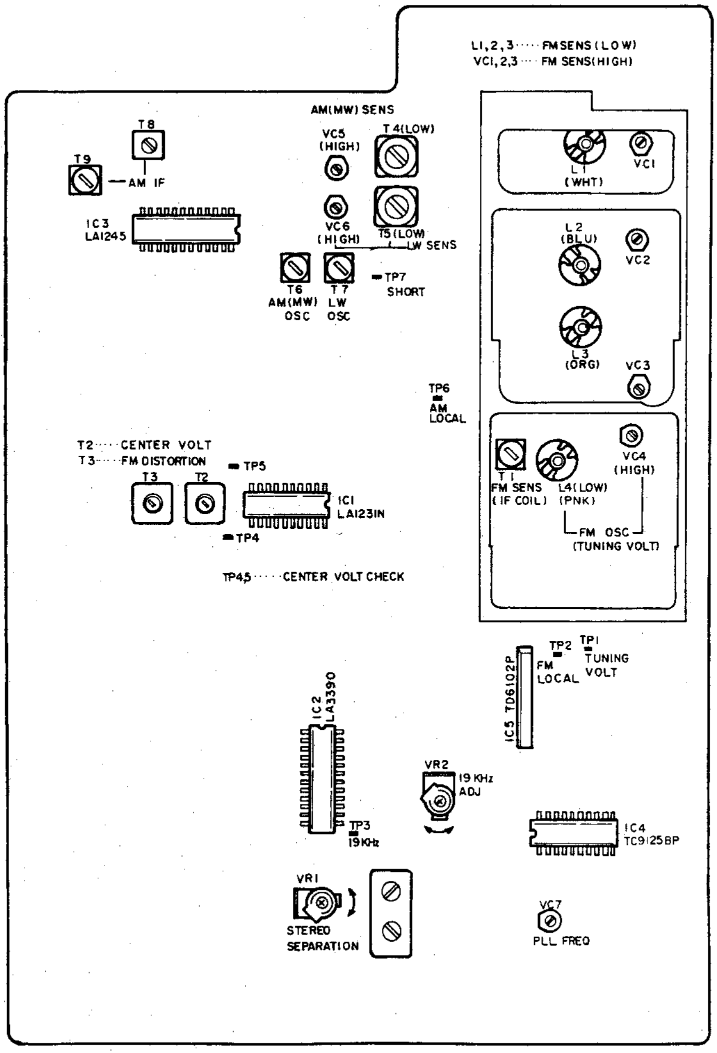

L1,2,3 ····· FM SENS (LOW)
VC1,2,3 ···· FM SENS (HIGH)
AM(MW) SENS
T8
T9
AM IF
VC5 (HIGH)
T4 (LOW)
VC6 (HIGH)
T5 (LOW)
LW SENS
IC3 LA1245
T6 AM(MW) OSC
T7 LW OSC
TP7 SHORT
L1 (WHT)
VC1
L2 (BLU)
VC2
L3 (ORG)
VC3
TP6 AM LOCAL
T2 ····· CENTER VOLT
T3 ····· FM DISTORTION
T3
T2
TP5
IC1 LA1231N
TP4
TP4,5 ····· CENTER VOLT CHECK
T1 FM SENS (IF COIL)
L4 (LOW) (PNK)
VC4 (HIGH)
FM OSC (TUNING VOLT)
IC5 TD6102P
TP2 FM LOCAL
TP1 TUNING VOLT
IC2 LA3390
VR2 19 KHz ADJ
TP3 19KHz
IC4 TC9125BP
VR1 STEREO SEPARATION
VC7 PLL FREQ

Fig. 2-9 Tuner PCB

1) AM (AA-R22L : MW) SECTION ADJUSTMENT (Refer to Figs. 2-9, 10)

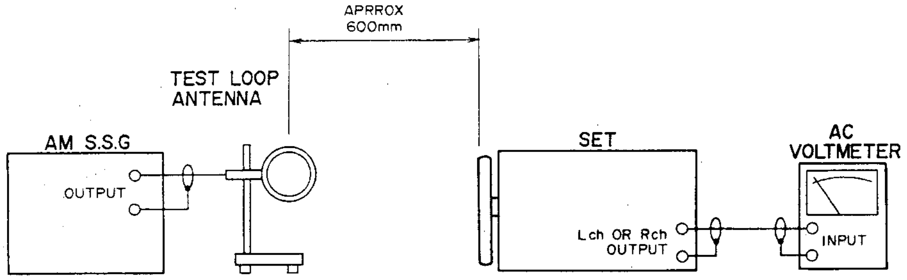


Fig. 2-10 Instrument Connection for AM (MW, LW) Section Adjustment

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	PLL Frequency	VC7	Digital Display indicating Freq. +10.7 MHz	Band SW to FM Connect Frequency Counter between TP2 and GND (See NOTE)
2	AM (MW) OSC	T6	710 ± 1 kHz (AA-R22) 730 ± 1 kHz (AA-R22L)	Band SW to AM (MW). Connect TP7 to GND. Connect Frequency Counter between TP6 and GND.
3	AM IF	T8, 9	Max Output	1,000 kHz (1008 kHz), 50 dB, 400 Hz (30%) input.
4	Low Range Sensitivity 600 kHz (603 kHz)	T4	Max Output Distortion Factor: Less than 10%	600 kHz (603 kHz), 50 dB, 400 Hz (30%) input.
5	High Range Sensitivity 1,400 kHz (1,404 kHz)	VC5	Max Output Distortion Factor: Less than 10%	1,400 kHz (1,404 kHz), 50 dB, 400 Hz (30%)
6				Readjust in Steps 4 and 5.

NOTE: Digital display frequency +10.7 MHz means that when the display frequency of Digital Display is 100 MHz, it should be adjust to 110.7 MHz.

2) LW SECTION ADJUSTMENT (AA-R22L only) (Refer to Figs. 2-9, 10)

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	LW OSC	T7	530 kHz ± 1 kHz	Band SW to LW. Connect TP7 to GND. Connect a Frequency Counter between TP6 and GND.
2	Low Range Sensitivity 155 kHz	T5	Max Output Distortion Factor: Less than 10%	155 kHz, 50 dB, 400 Hz (30%) input.
3	High Range Sensitivity 299 kHz	VC6	Max Output Distortion Factor: Less than 10%	299 kHz, 50 dB, 400 Hz (30%) input.
4				Readjust in Steps 2 and 3.

3) FM SECTION ADJUSTMENT (Refer to Figs. 2-9, 11)

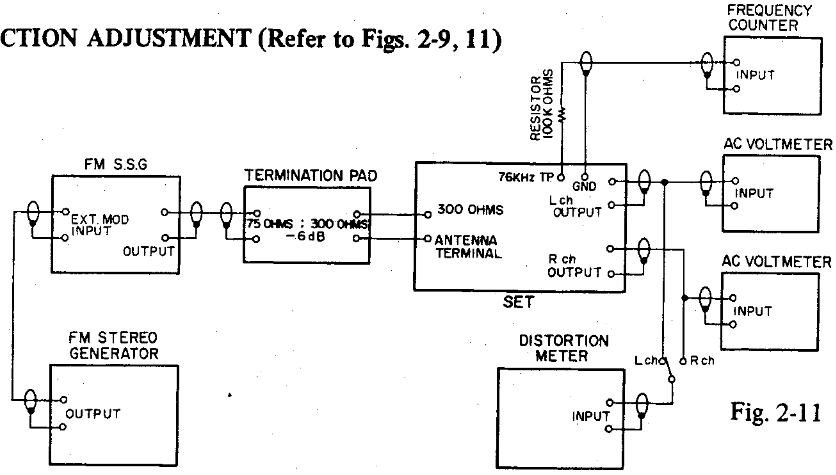

FREQUENCY COUNTER
INPUT
RESISTOR 100K OHMS
AC VOLTMETER
INPUT
FM S.S.G
EXT. MOD INPUT
OUTPUT
TERMINATION PAD
75 OHMS : 300 OHMS
−6dB
76KHz TP
GND
L ch OUTPUT
300 OHMS
ANTENNA TERMINAL
R ch OUTPUT
SET
AC VOLTMETER
INPUT
FM STEREO GENERATOR
OUTPUT
DISTORTION METER
INPUT
Lch
Rch

Fig. 2-11 Instruments Connection for FM Section Adjustment

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	FM Tuning Voltage (LOW)	L4	3.2V	1) Band SW to FM 2) Display to 88 MHz. 3) Connect a digital Voltmeter between TP1 and GND
2	FM Tuning Voltage (HIGH)	VC4	20V	Display to 108 MHz same as above.
3				Readjust in Steps 1 and 2.
4	PLL Frequency	VC7	Digital Display Indicating Frequency +10.7 MHz	Connect a Frequency Counter between TP2 and GND (See NOTE 1)
5	Low Range Sensitivity 88.0 MHz	L1, 2, 3 T1	Distortion Factor: Less than 3%	1) Mode SW to MONO. 2) 88 MHz less than 8 dB, 1 kHz (mono 100%) input.
6	High Range Sensitivity 108 MHz	VC1, 2, 3	Distortion Factor: Less than 3%	108 MHz, less than 8 dB, 1 kHz (mono 100%) input.
7				Readjust in Steps 5 and 6.
8	Center Voltage	T2	Centered Tuning Meter Indication	1) Connect a Tuning Meter between TP4 and TP5. (See NOTE 2) 2) Tunes only noise without interference from broadcasting.
9	Distortion Factor	T3	Distortion Factor: Less than 0.3%	98 MHz, 60 dB, 1 kHz (mono 100%) input.
10				Readjust in Steps 8 and 9.
11	MPX Free Running Frequency	VR2	19 kHz ± 50 Hz	Mode SW to FM Auto Connect a Frequency Counter between TP3 and GND. 98 MHz non-modulation signal input.
12	Stereo Separation	VR1	More than 40 dB	98 MHz, 60 dB, 1 kHz (Stereo 100%) Lch (Rch) input Minimum output of Rch (Lch).

NOTES:
1. Digital display frequency +10.7 MHz means that when the display frequency of Digital Display is 100 MHz, it should be adjusted to 110.7 MHz.
2. For the Center Meter should be used the tuning meter and the like available as a part of the other models.

VII. CLASSIFICATION OF VARIOUS P.C BOARDS

1. P.C BOARD TITLES AND IDENTIFICATION NUMBERS

1) Model AA-R22

P.C Board TITLE	P.C Board Number	Notes
EQ P.C Board	A1003B5010	
Tuner P.C Board	A1003A5020	U
Tuner P.C Board	A1003A5021	C, A
Tuner P.C Board	A1003A5022	S
Control P.C Board	A1003A503A	
FLD P.C Board	A1003A503B	
KEY P.C Board	A1003A503C	
Main Amp P.C Board	A1003A5040	U
Main Amp P.C Board	A1003A5050	C, A
Main Amp P.C Board	A1003A5060	S
Head Phone P.C Board	A1003A504B	U
Head Phone P.C Board	A1003A505B	C, A
Head Phone P.C Board	A1003A506B	S
IC P.C Board	A1003A504C	U
IC P.C Board	A1003A505C	C, A
IC P.C Board	A1003A 506C	S

2) Model AA-R22L

P.C Board Title	P.C Board Number	Notes
EQ P.C Board	A1003B5010	
Tuner P.C Board	A1003A5023	
Control P.C Board	A1003A503A	
FLD P.C Board	A1003A503B	
KEY P.C Board	A1003A503C	
Main Amp P.C Board	A1003A5060	
Head Phone P.C Board	A1003A506B	
IC P.C Board	A1003A506C	

2. COMPOSITION OF VARIOUS P.C BOARDS

1) MODEL AA-R22 TUNER P.C BOARD A1003A5020, 21, 22 (3ED)

LOCATION OF COMPONENTS

TR

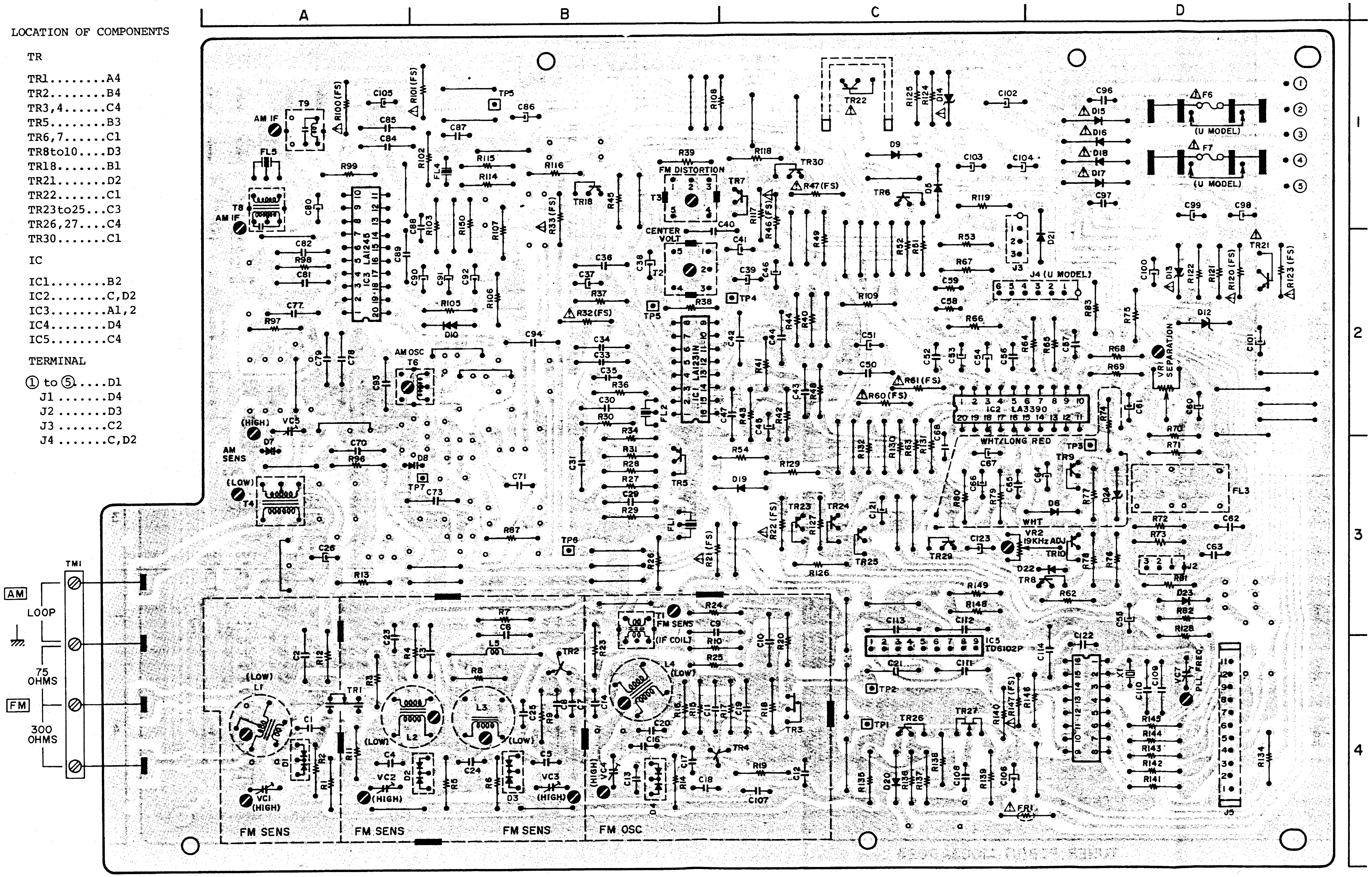
TR1........A4
TR2........B4
TR3,4......C4
TR5........B3
TR6,7......C1
TR8to10....D3
TR18.......B1
TR21.......D2
TR22.......C1
TR23to25...C3
TR26,27....C4
TR30.......C1

IC

IC1........B2
IC2........C,D2
IC3........A1,2
IC4........D4
IC5........C4

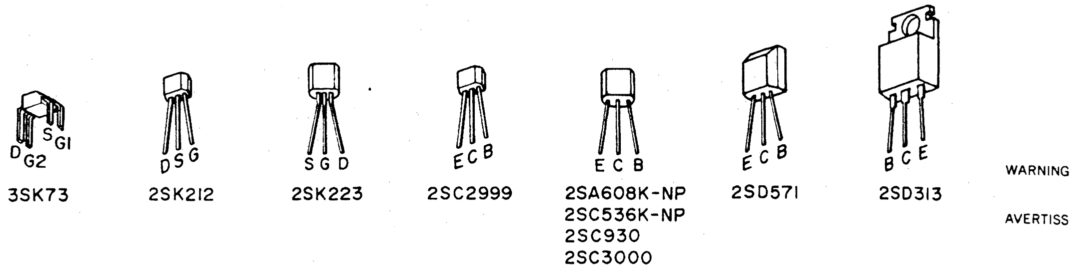
TERMINAL

① to ⑤.....D1
J1 ....D4
J2 ....D3
J3 ....C2
J4 ....C,D2


A
B
C
D
1
2
3
4
TM1
AM
LOOP
75 OHMS
FM
300 OHMS
AM IF
T9
T8
FL5
IC3 LA1245
AM OSC
T6
(HIGH)
VC5
AM SENS
(LOW)
T4
TP7
TP5
TP6
TR18
FM DISTORTION
CENTER VOLT
T3
T2
TP4
IC1 LA1231N
FL2
FL1
TR5
TR22
TR30
TR7
TR6
J3
J4 (U MODEL)
IC2 LA3390
WHT/LONG RED
TP3
TR9
WHT
VR2 19KHz ADJ
TR10
TR8
TR29
TR23
TR24
TR25
VR1 SEPARATION
FL3
J2
TR21
F6
F7
(U MODEL)
①
②
③
④
⑤
IC5 TD6102P
IC4
X1
VC7 PLL FREQ.
J5
TP2
TP1
TR26
TR27
FR1
T1 FM SENS (IF COIL)
L4 (LOW)
TR4
TR3
TR2
TR1
L1 (LOW)
L2
L3
VC1 (HIGH)
VC2 (HIGH)
VC3 (HIGH)
VC4 (HIGH)
FM SENS
FM SENS
FM SENS
FM OSC

TUNER PCB(U) A1003A5020
(C,A) A1003A5021
(S) A1003A5022

TR1 ——————— 3SK73(Y)
TR2 ——————— 2SC2999(C,D)
TR3 ——————— 2SK212(D,E)
TR4 ——————— 2SC930(E,F)
TR5 ——————— 2SC3000(E,F)
TR6 to 8,10,18,
24 to 26,30 —— 2SC536K-NP(E,F,G)
TR9,23 —————— 2SA608K-NP(E,F,G)
TR21 ——————— 2SD571(L,M)
TR22 ——————— 2SD313HP(E,F)
TR27 ——————— 2SK223(E,F)


D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC3000
E C B
2SD571
B C E
2SD313

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

2) MODEL AA-R22L TUNER P.C BOARD A1003A5023 (3ED)

LOCATION OF COMPONENTS
TR

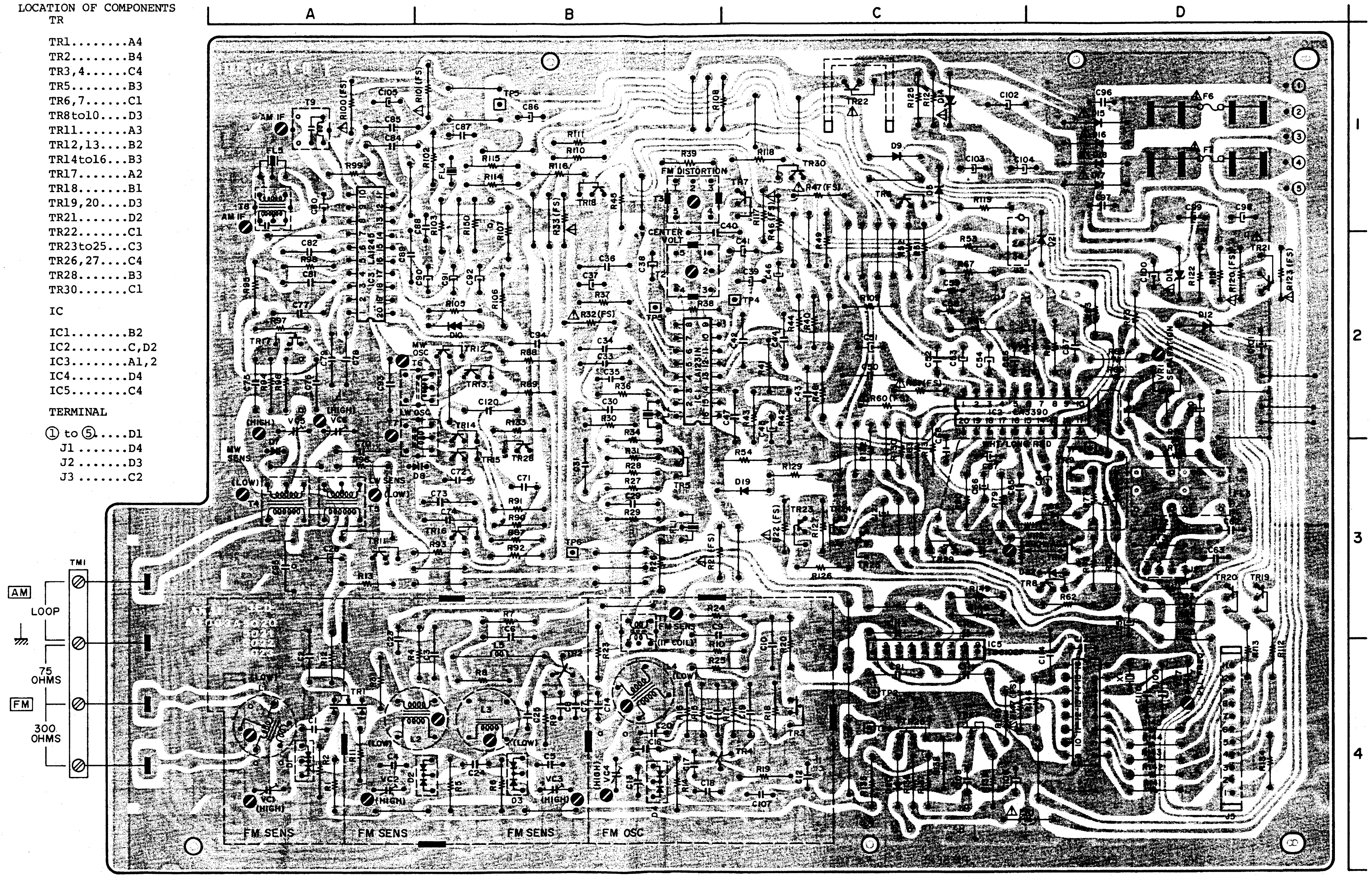
TR1........A4
TR2........B4
TR3,4......C4
TR5........B3
TR6,7......C1
TR8to10....D3
TR11.......A3
TR12,13....B2
TR14to16...B3
TR17.......A2
TR18.......B1
TR19,20....D3
TR21.......D2
TR22.......C1
TR23to25...C3
TR26,27....C4
TR28.......B3
TR30.......C1

IC

IC1........B2
IC2........C,D2
IC3........A1,2
IC4........D4
IC5........C4

TERMINAL

① to ⑤....D1
J1 ....D4
J2 ....D3
J3 ....C2

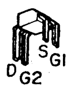

A
B
C
D
1
2
3
4
TM1
AM
LOOP
75 OHMS
FM
300 OHMS
AM IF
T9
T8
FL3
FL4
IC3 LA1245
IC1 LA1231N
IC2 LA3390
IC5
MW OSC
LW OSC
MW SENS
LW SENS
(HIGH)
(LOW)
VC5
VC6
FM DISTORTION
CENTER VOLT
(IF COIL)
TP1
TP4
TP5
TP6
F6
F7
VR1
TR1
TR4
TR5
TR12
TR13
TR14
TR15
TR16
TR18
TR19
TR20
TR21
TR22
TR28
TR30
FM SENS
FM SENS
FM SENS
FM OSC
VC1
VC2
VC3
VC4
J3

TUNER PCB(U) A1003A5023

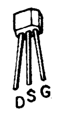
TR1 ------- 3SK73(Y)
TR2 ------- 2SC2999(C,D)
TR3 ------- 2SK212(D,E)
TR4 ------- 2SC930(E,F)
TR5 ------- 2SC3000(E,F)
TR6 to 8, 10, 16, 18 to 20
24 to 26, 28, 30 - 2SC536K-NP(E,F,G)
TR9, 12 to 15, 23 -- 2SK608K-NP(E,F,G)
TR11 ------- 2SC2878(A,B)
TR17 ------- 2SK19(O,Y)
TR21 ------- 2SD571(L,M)
TR22 ------- 2SD313HP(E,F)
TR27 ------- 2SK223(E,F)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

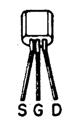
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT



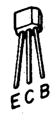
3SK73



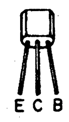
2SK212



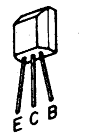
2SK223



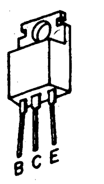
2SC2999



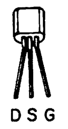
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000



2SD571

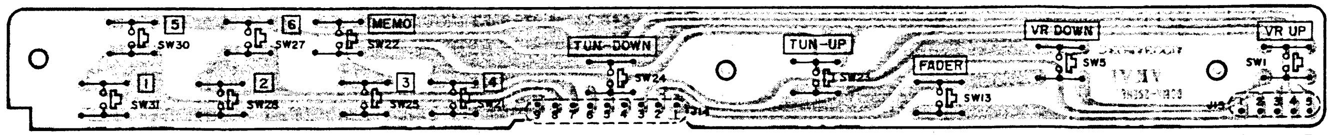


2SD313

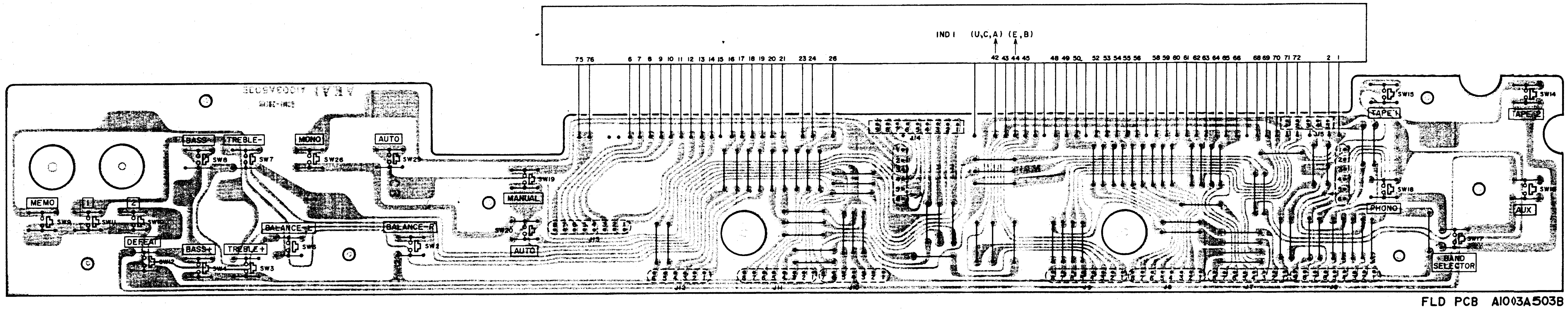


2SK19

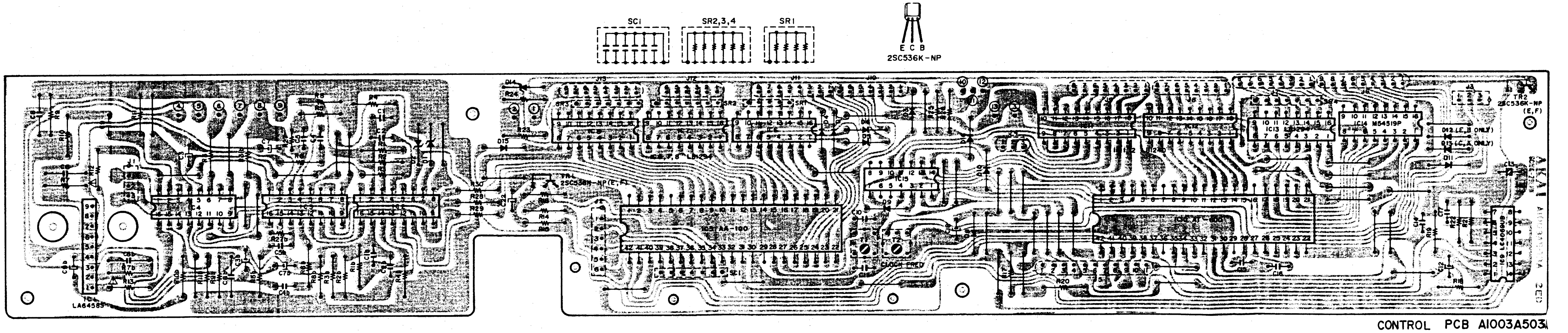
3) MODEL AA-R22/L CONTROL P.C BOARD A1003A503A(2ED), FLD P.C BOARD A1003A503B and KEY P.C BOARD A1003A503C


5
SW30
6
SW27
MEMO
SW22
1
SW31
2
SW28
3
SW25
4
TUN-DOWN
SW24
TUN-UP
FADER
SW13
VR DOWN
SW5
VR UP
SW1

KEY PCB A1003A503C


IND I (U,C,A) (E,B)
75 76 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 23 24 26 42 43 44 45 48 49 50 52 53 54 55 56 58 59 60 61 62 63 64 65 66 68 69 70 71 72 2 1
BASS-
TREBLE-
SW8
SW7
MONO
SW26
AUTO
MEMO
DEFEAT
BALANCE-L
BALANCE-R
BASS+
TREBLE+
SW3
SW6
SW2
MANUAL
SW19
SW20
AUTO
TAPE 1
TAPE 2
SW15
SW14
SW18
PHONO
AUX
SW17
BAND SELECTOR
J12
J11
J13
J14
J15

FLD PCB A1003A503B

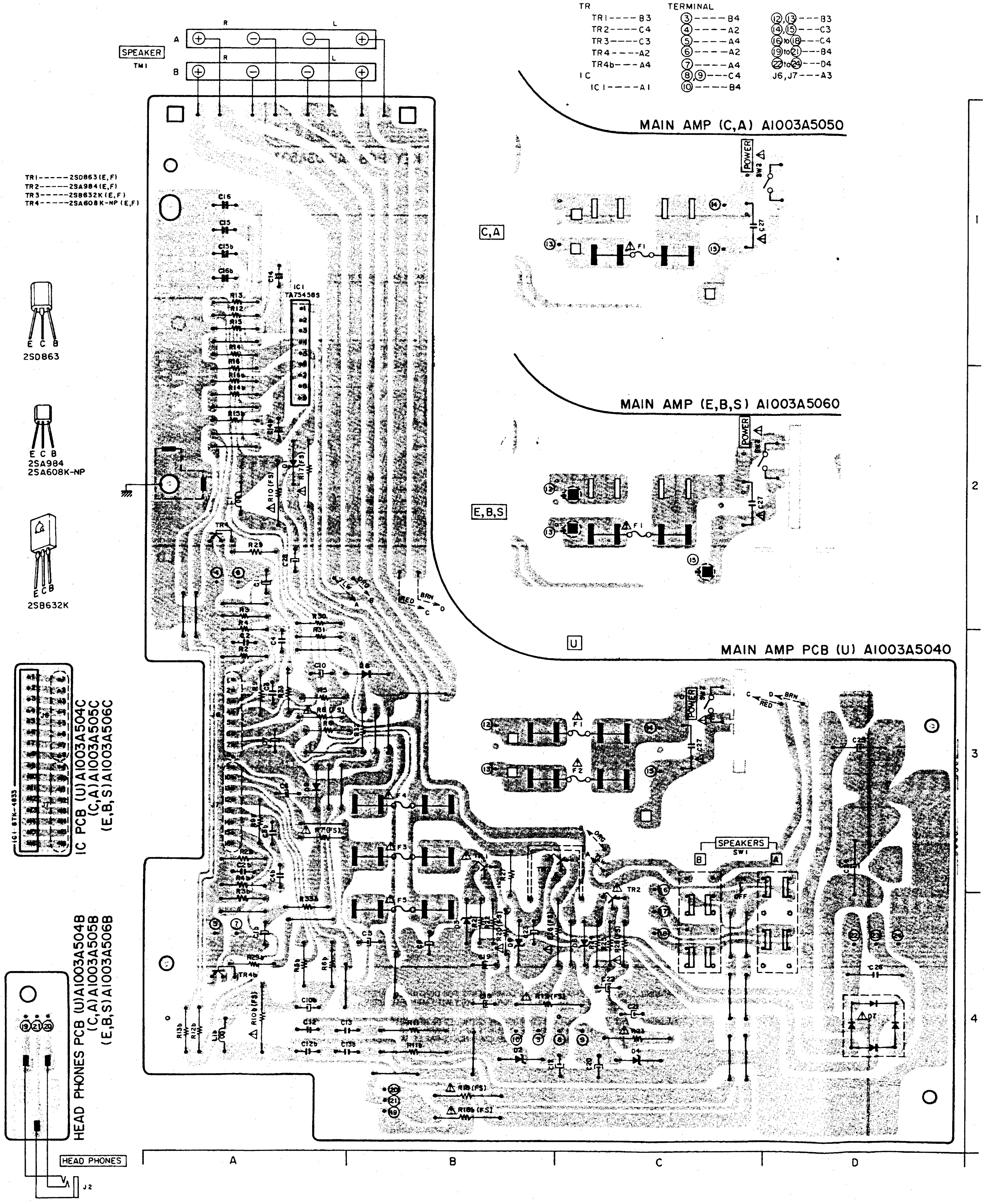

SC1
SR2,3,4
SR1
E C B
2SC536K-NP
IC1
LA6458S
TR1
2SC536N-NP(E,F)
IC15
IC13
IC14 M54519P
TR2
2SC536K-NP
(E,F)
R20
C16
R16
D11
D12
D13
D14
D15
R24
R28
R29
R30
SR1
SR2
SR3
AKAI

CONTROL PCB A1003A503

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

4) MODEL AA-R22/L MAIN AMP P.C BOARD A1003A5040, 50, 60(3ED), HEADPHONE P.C BOARD A1003A504B, 5B, 6B and IC P.C BOARD A1003A504C, 5C, 6C


SPEAKER
TM1
A
B
R
L
MAIN AMP (C,A) A1003A5050
POWER
C,A
MAIN AMP (E,B,S) A1003A5060
E,B,S
U
MAIN AMP PCB (U) A1003A5040
SPEAKERS
SW1
IC1
TA7458S
2SD863
E C B
2SA984
2SA608K-NP
2SB632K
IC PCB (U)A1003A504C
(C,A)A1003A505C
(E,B,S)A1003A506C
HEAD PHONES PCB (U)A1003A504B
(C,A)A1003A505B
(E,B,S)A1003A506B
HEAD PHONES
J2
A
B
C
D
1
2
3
4

LOCATION OF COMPONENTS

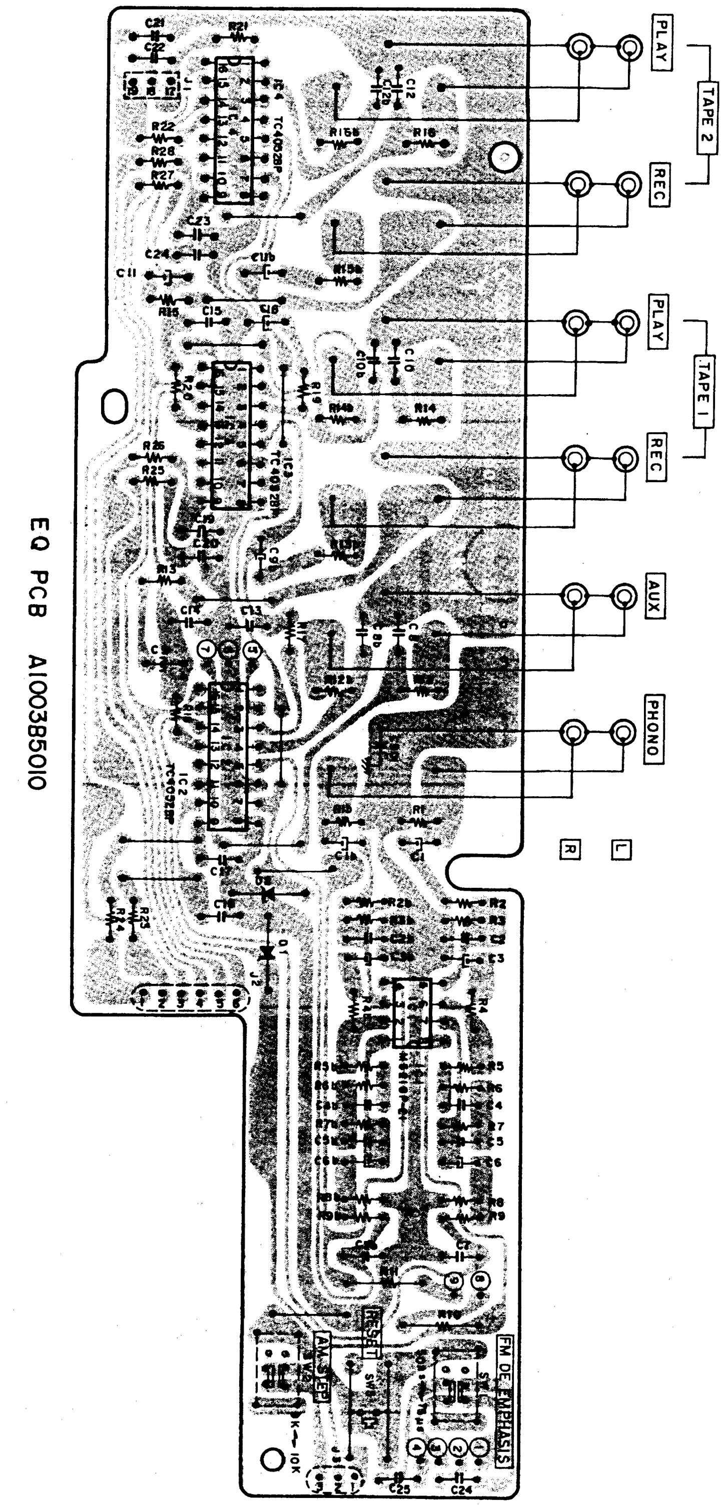
TR	TERMINAL	
TR1-----B3	③-----B4	⑫,⑬---B3
TR2-----C4	④-----A2	⑭,⑮---C3
TR3-----C3	⑤-----A4	⑯to⑱---C4
TR4-----A2	⑥-----A2	⑲to㉑---B4
TR4b----A4	⑦-----A4	㉒to㉔---D4
IC	⑧,⑨---C4	J6,J7---A3
IC1-----A1	⑩-----B4	

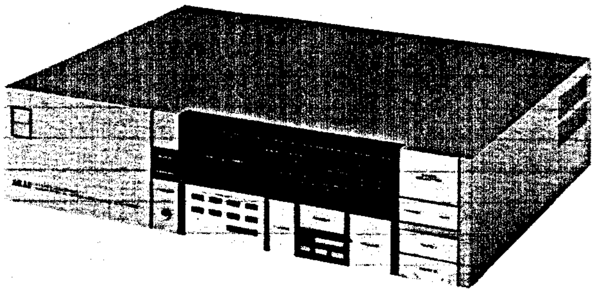
TR1------2SD863(E,F)
TR2------2SA984(E,F)
TR3------2SB632K(E,F)
TR4------2SA608K-NP(E,F)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

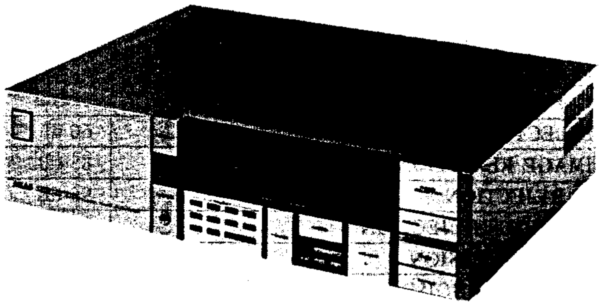
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

5) MODEL AA-R22/L EQ P.C BOARD A1003B5010(2ED)


EQ PCB A1003B5010
PLAY
REC
TAPE 2
PLAY
REC
TAPE 1
AUX
PHONO
R
L
IC4
TC4028BP
IC3
IC2
RESET
FM DE-EMPHASIS



AA-R32/L



AA-R42

SECTION 3

SERVICE MANUAL

MODEL AA-R32/L, AA-R42

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. SPECIFICATIONS

1. MODEL AA-R32/L

FM TUNER SECTION

FREQUENCY RANGE	87.4 MHz to 108.1 MHz
USABLE SENSITIVITY (30 dB) (IHF)	11.2 dBf
50 dB QUIETING SENSITIVITY (IHF)	16.2 dBf (MONO) 37.2 dBf (STEREO)
CAPTURE RATIO	1.5 dB
SELECTIVITY (IHF)	60 dB
IMAGE REJECTION	85 dB
IF REJECTION	90 dB
SPURIOUS REJECTION	90 dB
AM SUPPRESSION	60 dB
SIGNAL TO NOISE RATIO (IHF)	MONO: 75 dB STEREO: 65 dB
HARMONIC DISTORTION	MONO: 0.1% STEREO: 0.3% (at 100% modulation)
STEREO SEPARATION	45 dB (1 kHz), 35 dB (30 Hz to 15 kHz)
FREQUENCY RESPONSE	30 Hz to 12 kHz ± 0.5 dB
SUB CARRIER SUPPRESSION	60 dB
ANTENNA INPUT IMPEDANCE	300 ohms balanced, 75 ohms unbalanced

AM (MW for AA-R32L) TUNER SECTION

FREQUENCY RANGE	530 kHz to 1610 kHz (for 10 kHz steps) 522 kHz to 1611 kHz (for 9 kHz steps)
USABLE SENSITIVITY (IHF)	300 μV/m
SELECTIVITY (IHF)	35 dB
IMAGE REJECTION	40 dB
IFF REJECTION	55 dB
SIGNAL TO NOISE RATIO	45 dB
ANTENNA	Built in Loop Antenna

LW TUNER SECTION (AA-R32L only)

FREQUENCY RANGE	137 kHz to 362 kHz
USABLE SENSITIVITY (IHF)	800 μV/m
SELECTIVITY (IHF)	35 dB
IMAGE REJECTION	45 dB
IF REJECTION	55 dB
SIGNAL TO NOISE RATIO	35 dB
ANTENNA	Built in Loop Antenna

AMPLIFIER SECTION

RATED POWER OUTPUT (2-channel Driven)	45 watts per channel, minimum RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.01% total harmonic distortion.
POWER BANDWIDTH (IHF)	5 Hz to 40 kHz/8 ohms (Total harmonic distortion 0.1%)
SIGNAL TO NOISE RATIO	PHONO: 75 dB AUX/TAPE: 98 dB
CHANNEL SEPARATION (IHF)	PHONO: 60 dB (1 kHz) AUX/TAPE: 60 dB (1 kHz)
DAMPING FACTOR	more than 35 (1 kHz, 8 ohms)
INPUT SENSITIVITY/IMP	PHONO: 2.5 mV/100 kohms AUX/TAPE: 150 mV/47 kohms
OUTPUT LEVEL/IMP	TAPE REC: 150 mV/3 kohms
FREQUENCY RESPONSE	PHONO: 30 Hz to 15 kHz ± 0.5 dB (RIAA) AUX/TAPE: 5 Hz to 100 kHz − 3 dB
TONE CONTROL	BASS: ±8 dB (100 Hz) TREBLE: ±8 dB (10 kHz)
SPEAKERS	A, B (4 to 16 ohms)/A + B (8 to 16 ohms)
POWER REQUIREMENTS	120V, 60 Hz for USA & Canada 220V, 50 Hz for European countries except UK 240V, 50 Hz for UK & Australia 110V/120V/220V/240V, 50/60 Hz switchable for other countries
DIMENSIONS	440(W) x 100(H) x 320(D) mm (17.3 x 3.9 x 12.6 inches)
WEIGHT	9 kg (19.8 lbs)

*** For improvement purposes, specifications and design are subject to change without notice.**

2. MODEL AA-R42

FM TUNER SECTION

FREQUENCY RANGE	87.4 MHz to 108.1 MHz
USABLE SENSITIVITY (30 dB) (IHF)	11.2 dBf
50 dB QUIETING SENSITIVITY (IHF)	16.2 dBf (MONO) 37.2 dBf (STEREO)
CAPTURE RATIO	1.5 dB
SELECTIVITY (IHF)	60 dB
IMAGE REJECTION	85 dB
IF REJECTION	90 dB
SPURIOUS REJECTION	90 dB
AM SUPPRESSION	60 dB
SIGNAL TO NOISE RATIO (IHF)	MONO: 75 dB STEREO: 65 dB
HARMONIC DISTORTION	MONO: 0.1% STEREO: 0.3% (at 100% modulation)
STEREO SEPARATION	45 dB (1 kHz), 35 dB (30 Hz to 15 kHz)
FREQUENCY RESPONSE	30 Hz to 12 kHz ± 0.5 dB
SUB CARRIER SUPPRESSION	60 dB
ANTENNA INPUT IMPEDANCE	300 ohms balanced, 75 ohms unbalanced

AM TUNER SECTION

FREQUENCY RANGE	530 kHz to 1610 kHz (for 10 kHz steps) 522 kHz to 1611 kHz (for 9 kHz steps)
USABLE SENSITIVITY (IHF)	300 µV/m
SELECTIVITY (IHF)	35 dB
IMAGE REJECTION	40 dB
IFF REJECTION	55 dB
SIGNAL TO NOISE RATIO	45 dB
ANTENNA	Built in Loop Antenna

AMPLIFIER SECTION

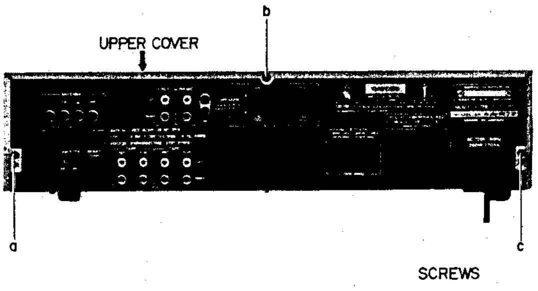
RATED POWER OUTPUT (2-channel Driven)	60 watts per channel, minimum RMS, at 8 ohms from 20 to 20,000 Hz with no more than 0.01% total harmonic distortion.
POWER BANDWIDTH (IHF)	5 Hz to 70 kHz/8 ohms (Total harmonic distortion 0.1%)
SIGNAL TO NOISE RATIO	PHONO MC: 70 dB PHONO MM: 85 dB AUX/TAPE: 98 dB
CHANNEL SEPARATION (IHF)	PHONO: 65 dB (1 kHz) AUX/TAPE: 60 dB (1 kHz)
DAMPING FACTOR	more than 35 (1 kHz, 8 ohms)
INPUT SENSITIVITY/IMP	PHONO MC: 0.25 mV/100 ohms PHONO MM: 2.5 mV/47 kohms AUX/TAPE: 150 mV/47 kohms
OUTPUT LEVEL/IMP	TAPE REC: 150 mV/3 kohms
FREQUENCY RESPONSE	PHONO: 30 Hz to 15 kHz ± 0.5 dB (RIAA) AUX/TAPE: 5 Hz to 100 kHz – 3 dB
TONE CONTROL	BASS: ±8 dB (100 Hz) TREBLE: ±8 dB (10 kHz)
FILTER	Subsonic: 18 Hz, –6 dB/oct
SPEAKERS	A, B (4 to 16 ohms)/A + B (8 to 16 ohms)
POWER REQUIREMENTS	120V, 60 Hz for USA & Canada 240V, 50 Hz for Australia 110V/120V/220V/240V, 50/60 Hz switchable for other countries.
DIMENSIONS	440(W) x 100(H) x 320(D) mm (17.3 x 3.9 x 12.6 inches)
WEIGHT	10 kg (22.0 lbs)

*** For improvement purposes, specifications and design are subject to change without notice.**

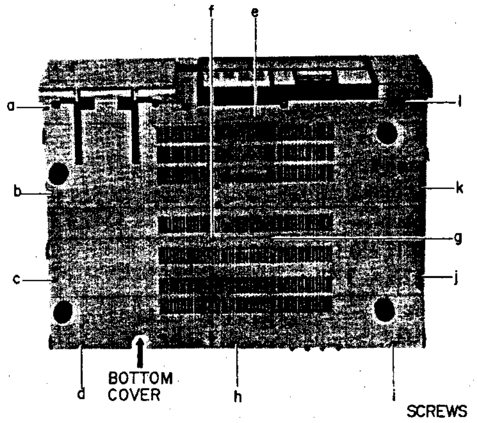
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

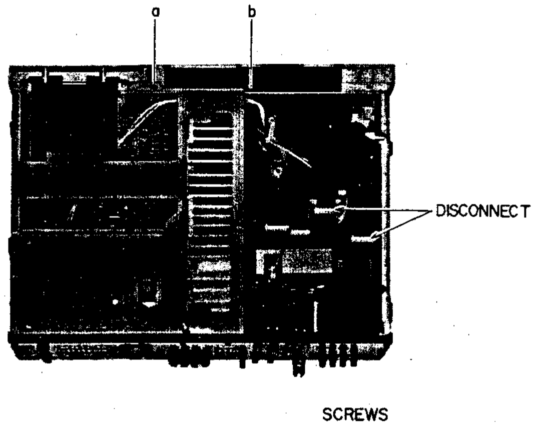
1


b
UPPER COVER
a
c
SCREWS

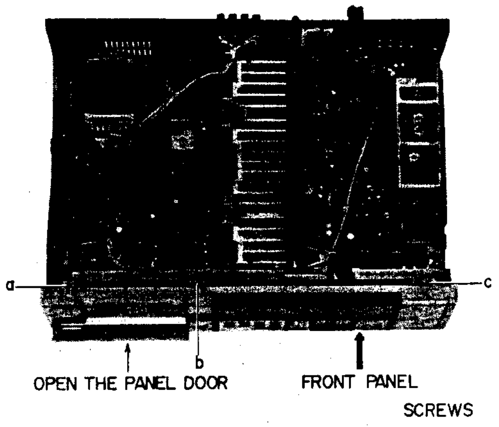
2


f
e
a
l
b
k
g
c
j
d
BOTTOM COVER
h
i
SCREWS

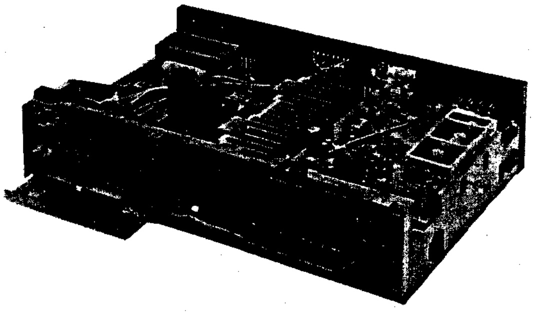
3


a
b
DISCONNECT
SCREWS

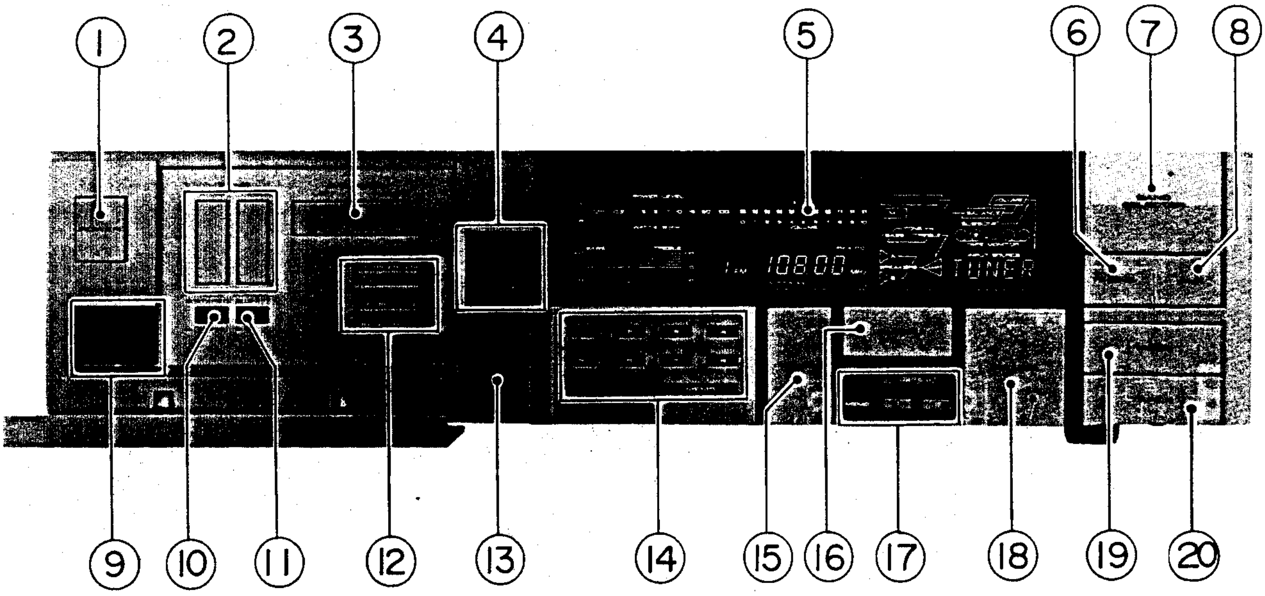
4


a
c
b
OPEN THE PANEL DOOR
FRONT PANEL
SCREWS

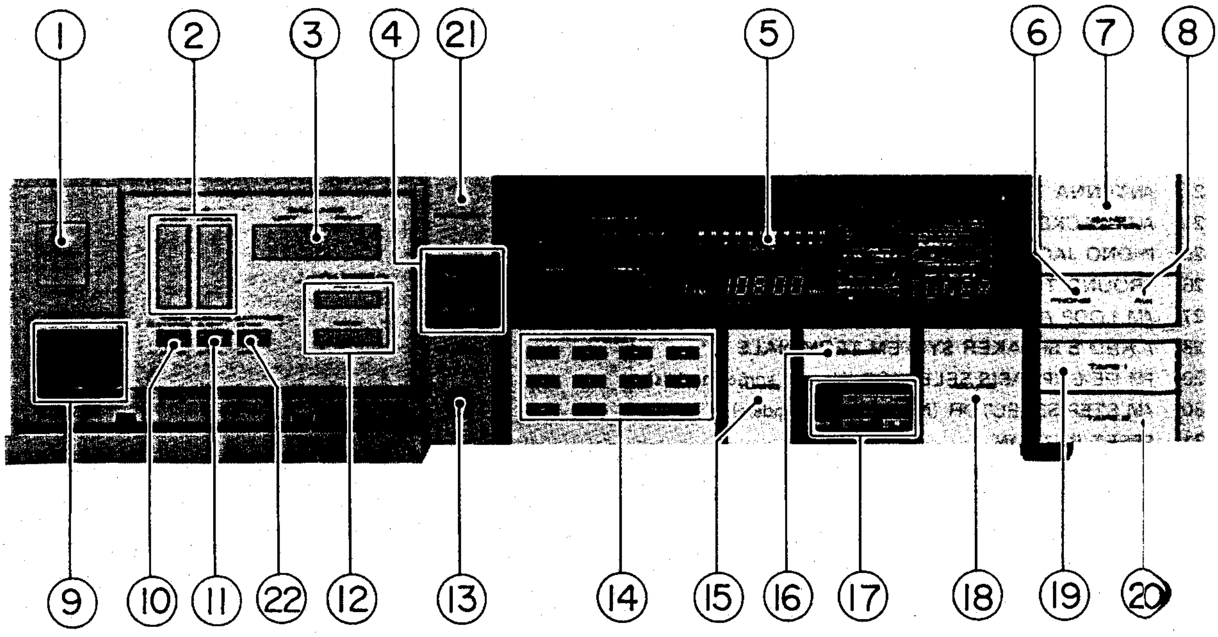
5



III. CONTROLS

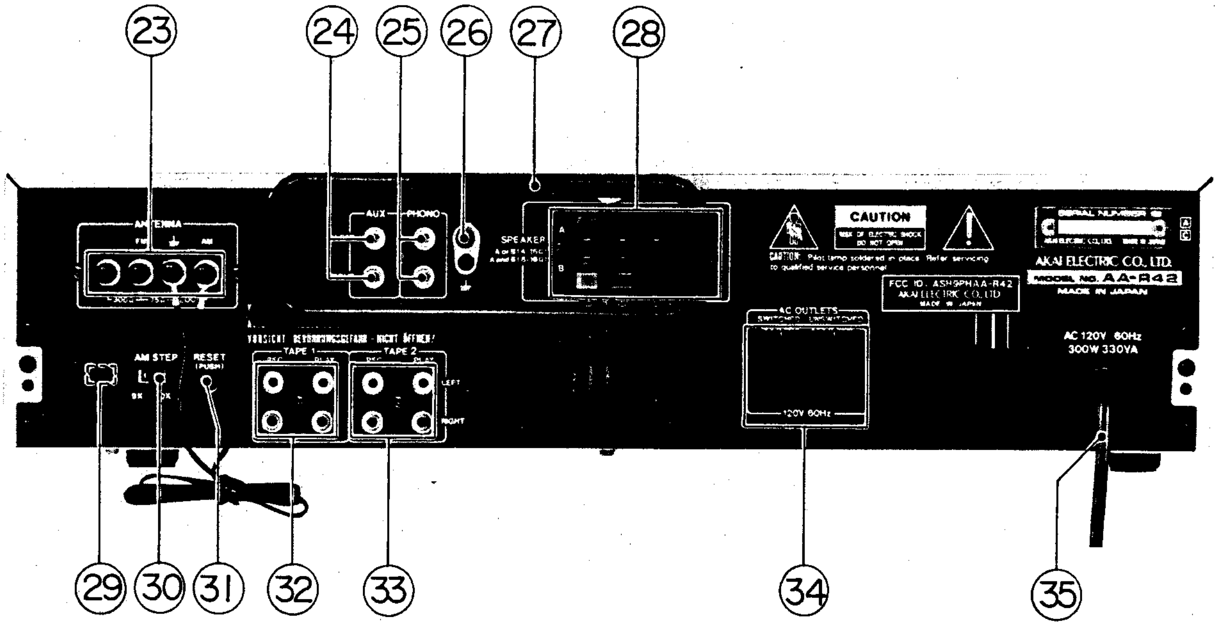

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Model AA-R32/L


1
2
3
4
21
5
6
7
8
9
10
11
22
12
13
14
15
16
17
18
19
20

Model AA-R42

1. POWER SWITCH
2. BASS AND TREBLE CONTROL
3. BALANCE CONTROL
4. TUNING MODE SELECTOR
5. FL DISPLAY
6. PHONO BUTTON
7. BAND SELECTOR
8. AUX BUTTON
9. SPEAKER SELECTOR
10. MODE SELECTOR (STEREO/MONO)
11. SUBSONIC FILTER SWITCH
12. FM MODE SELECTOR
13. PHONES JACK
14. PRESET STATION BUTTON
15. TUNING (UP/DOWN) BUTTON
16. FADER BUTTON
17. ACOUSTIC MEMORIES AND DEFEAT BUTTONS
18. VOLUME (UP/DOWN) BUTTON
19. TAPE 1 BUTTON
20. TAPE 2 BUTTON
21. RANDOM BUTTON (AA-R42 Only)
22. CARTRIDGE SELECTOR (AA-R42 Only)


23
24
25
26
27
28
ANTENNA
AUX
PHONO
SPEAKER
A
B
CAUTION
AKAI ELECTRIC CO. LTD.
AA-R42
MADE IN JAPAN
AC OUTLETS
AM STEP
RESET (PUSH)
TAPE 1
TAPE 2
LEFT
RIGHT
120V 60Hz
AC 120V 60Hz
300W 330VA
29
30
31
32
33
34
35

Model AA-R32/L, R42

Fig. 3-1 Controls

23. ANTENNA TERMINALS
24. AUX JACKS
25. PHONO JACKS
26. GROUND TERMINAL
27. AM LOOP ANTENNA
28. A AND B SPEAKER SYSTEM TERMINALS
29. FM DE-EMPHASIS SELECTOR (Not on some models)
30. AM STEP SELECTOR (Not on some models)
31. RESET BUTTON
32. TAPE 1 REC/PLAY JACKS
33. TAPE 2
34. AC OUTLETS (Not on some models)
35. POWER CORD

IV. PRINCIPAL PARTS LOCATION

1. MODEL AA-R32/L

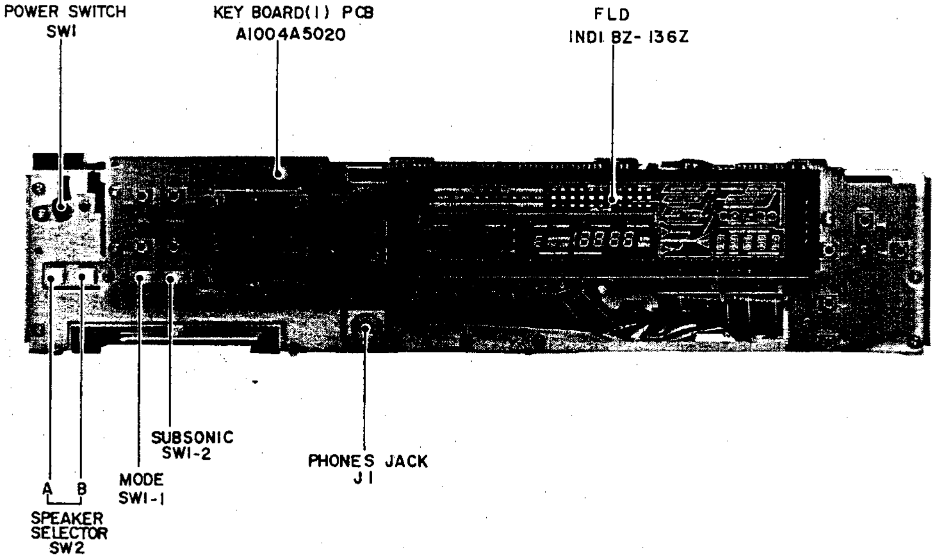

POWER SWITCH
SWI
KEY BOARD(I) PCB
AI004A5020
FLD
INDI BZ-136Z
SUBSONIC
SWI-2
PHONES JACK
J I
A B
SPEAKER
SELECTOR
SW2
MODE
SWI-I

Fig. 3-2 Model AA-R32/L Front View

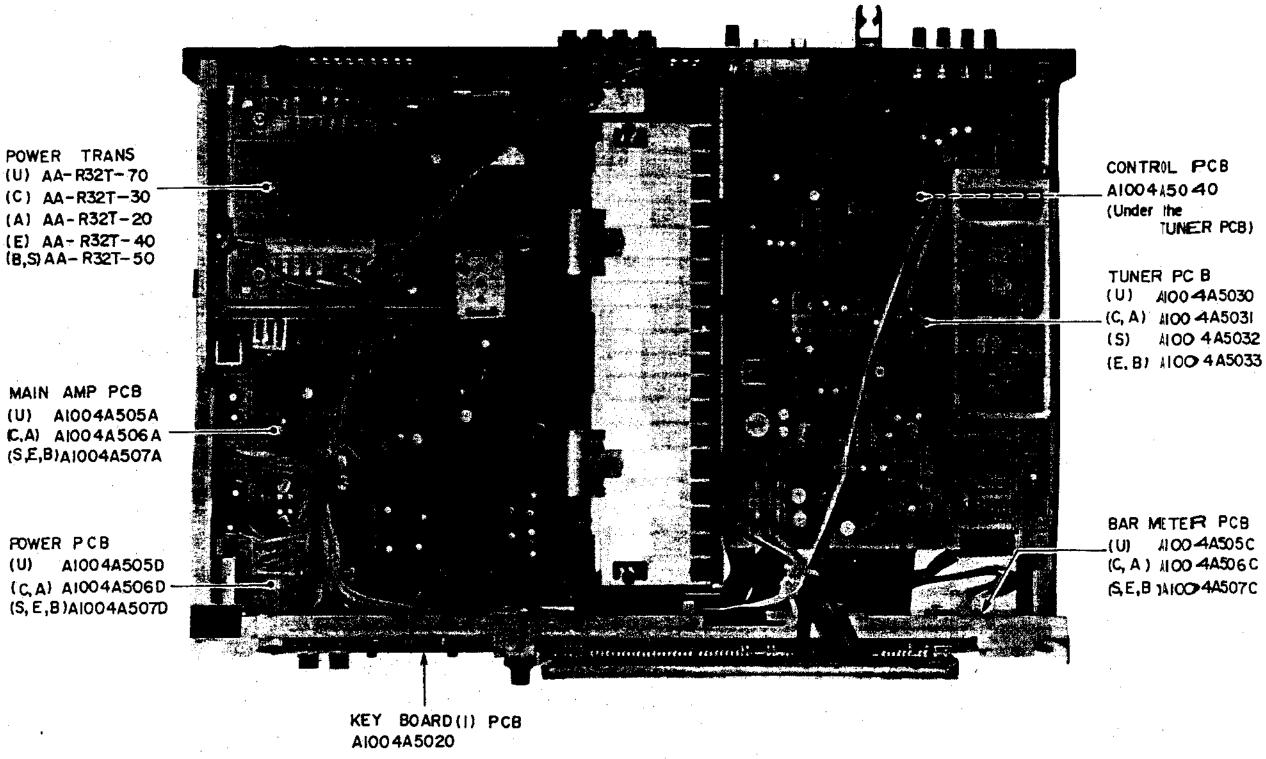

POWER TRANS
(U) AA-R32T-70
(C) AA-R32T-30
(A) AA-R32T-20
(E) AA-R32T-40
(B,S) AA-R32T-50
MAIN AMP PCB
(U) AI004A505A
(C,A) AI004A506A
(S,E,B) AI004A507A
POWER PCB
(U) AI004A505D
(C,A) AI004A506D
(S,E,B) AI004A507D
KEY BOARD(I) PCB
AI004A5020
CONTROL PCB
AI004A5040
(Under the
TUNER PCB)
TUNER PC B
(U) AI004A5030
(C, A) AI004A5031
(S) AI004A5032
(E, B) AI004A5033
BAR METER PCB
(U) AI004A505C
(C, A) AI004A506C
(S,E,B) AI004A507C

Fig. 3-3 Model AA-R32/L Top View

2. MODEL AA-R42

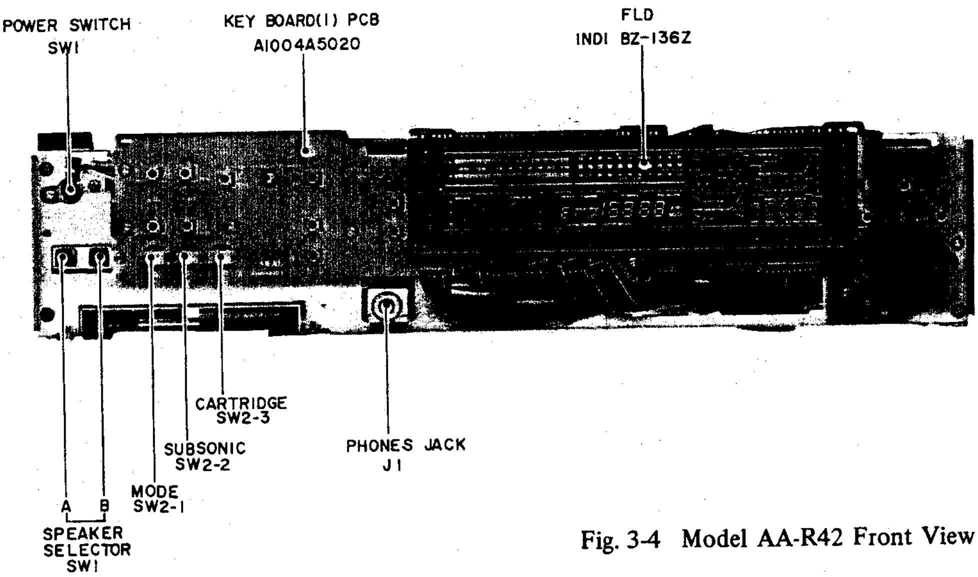

POWER SWITCH
SW1
KEY BOARD(1) PCB
A1004A5020
FLD
INDI BZ-136Z
CARTRIDGE
SW2-3
SUBSONIC
SW2-2
PHONES JACK
J1
MODE
SW2-1
A B
SPEAKER
SELECTOR
SW1

Fig. 3-4 Model AA-R42 Front View

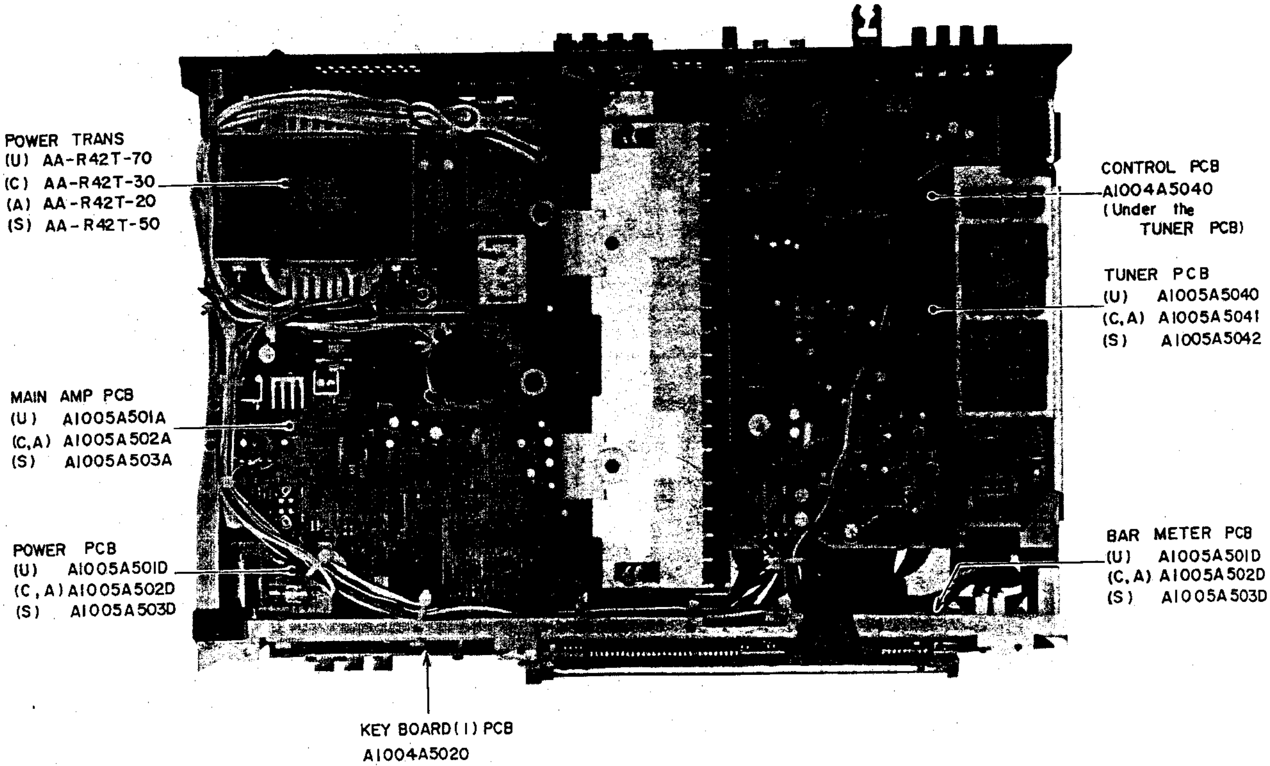

POWER TRANS
(U) AA-R42T-70
(C) AA-R42T-30
(A) AA-R42T-20
(S) AA-R42T-50
CONTROL PCB
A1004A5040
(Under the
TUNER PCB)
TUNER PCB
(U) A1005A5040
(C,A) A1005A5041
(S) A1005A5042
MAIN AMP PCB
(U) A1005A501A
(C,A) A1005A502A
(S) A1005A503A
BAR METER PCB
(U) A1005A501D
(C,A) A1005A502D
(S) A1005A503D
POWER PCB
(U) A1005A501D
(C,A) A1005A502D
(S) A1005A503D
KEY BOARD(1) PCB
A1004A5020

Fig. 3-5 Model AA-R42 Top View

V. CONVERSION

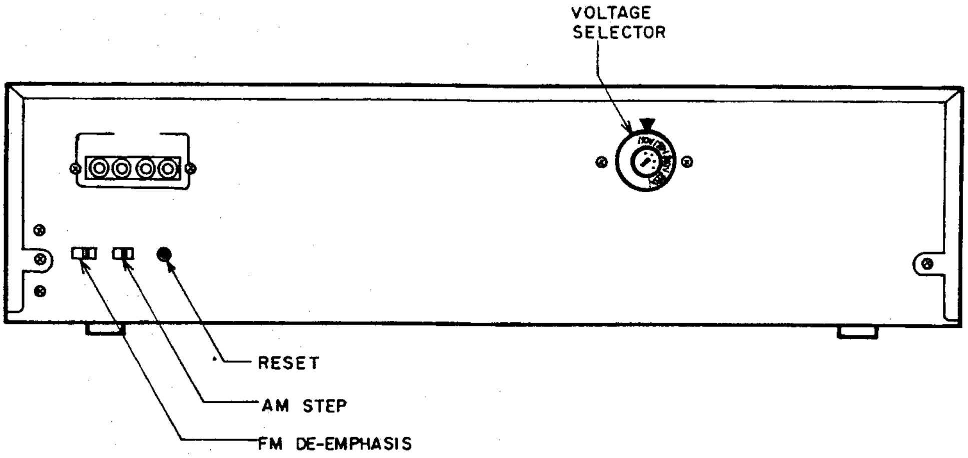

VOLTAGE SELECTOR
RESET
AM STEP
FM DE-EMPHASIS

Fig. 3-6 Rear View

1. VOLTAGE CONVERSION

Models for Canada, USA and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.

If your machine's voltage can be converted:

1) Disconnect the power cord from the power supply.
2) Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.

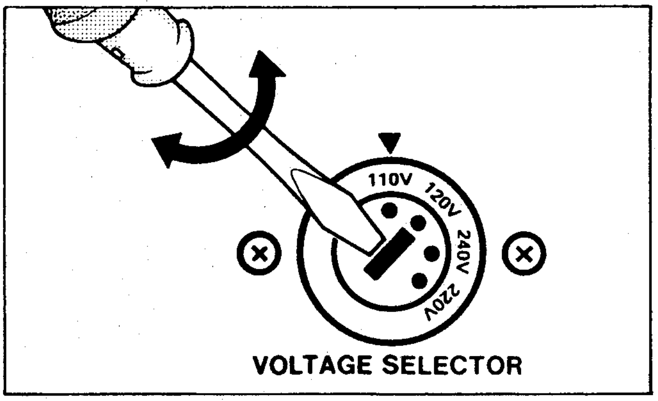

110V
120V
240V
220V
VOLTAGE SELECTOR

Fig. 3-7

2. FM DE-EMPHASIS SELECTOR (NOT ON SOME MODELS.)

Use this selector to de-emphasize an FM signal encoded with Dolby NR by an amount (50 μs or 75 μs) equal to the emphasis made at the broadcasting station.
Set this selector accordng to your area.

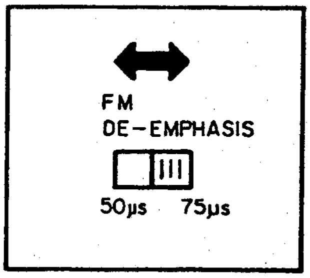

FM
DE-EMPHASIS
50μs
75μs

Fig. 3-8

3. AM STEP SELECTOR (NOT ON SOME MODELS.)

The Akai AA-R32/42 can scan the AM frequencies in steps of 9 kHz or 10 kHz. Set this selector according to the broadcasting frequencies in your area. After setting the AM STEP selector, turn on the Akai AA-R32/42 and then depress the RESET button.

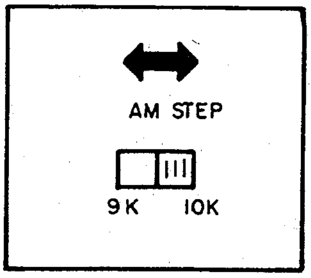

AM STEP
9K
10K

Fig. 3-9

VI. ADJUSTMENTS

1. CLOCK FREQUENCY ADJUSTMENT (Refer to Fig. 3-10)

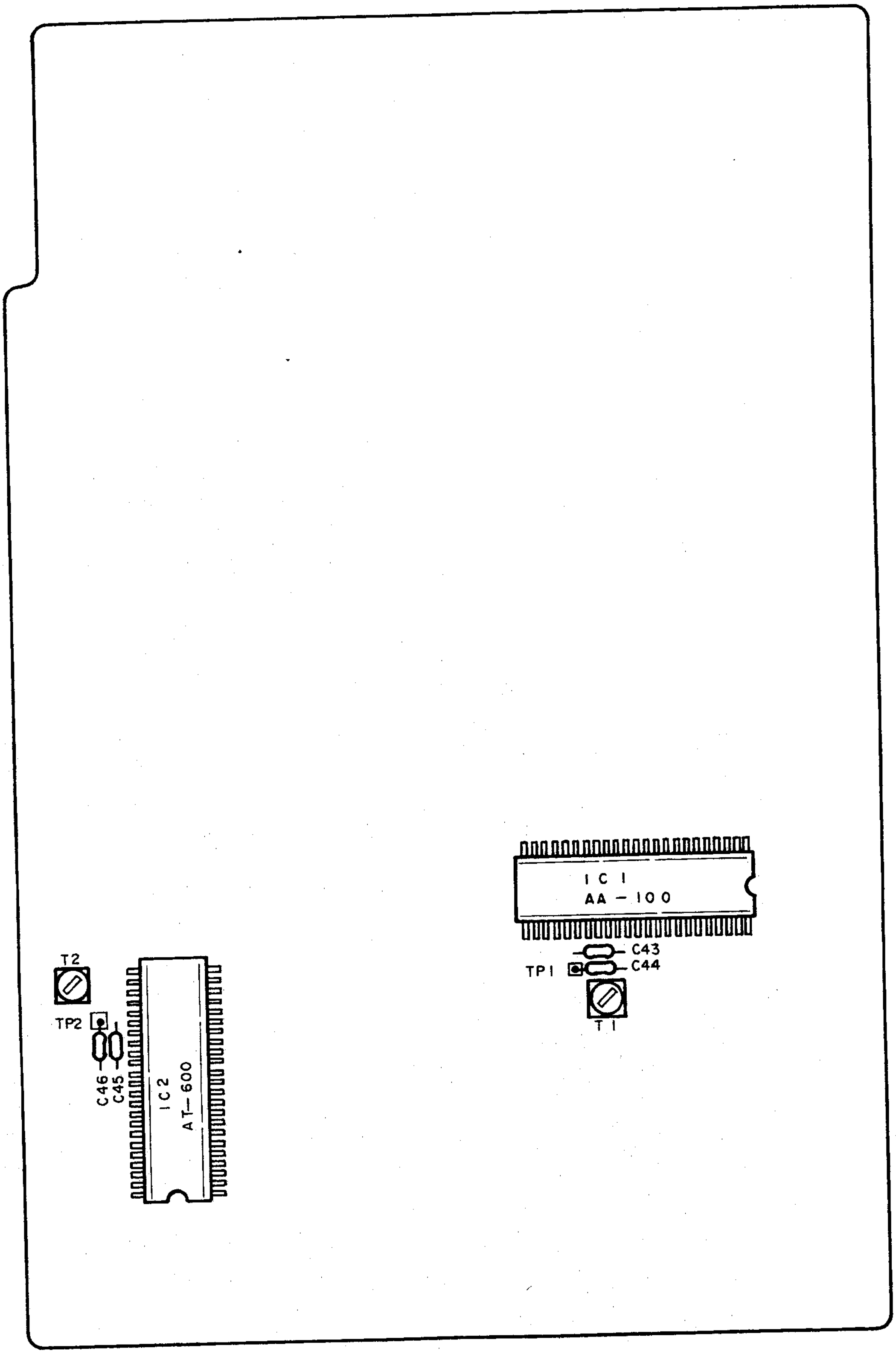

IC1
AA – 100
C43
C44
TP1
T1
T2
TP2
C46
C45
IC2
AT–600

Fig. 3-10 AA-R32/L, AA-R42 Control PCB

1) Connect a Frequency Counter to TP1 (TP2).
2) Confirm that Frequency Counter reading is 400 kHz ~ 430 kHz.
3) Adjust T1 (Frequency of TP1) or T2 (Frequency of TP2), if adjustment is necessary.

2. MODEL AA-R32/L, AA-R42 TUNER ADJUSTMENT

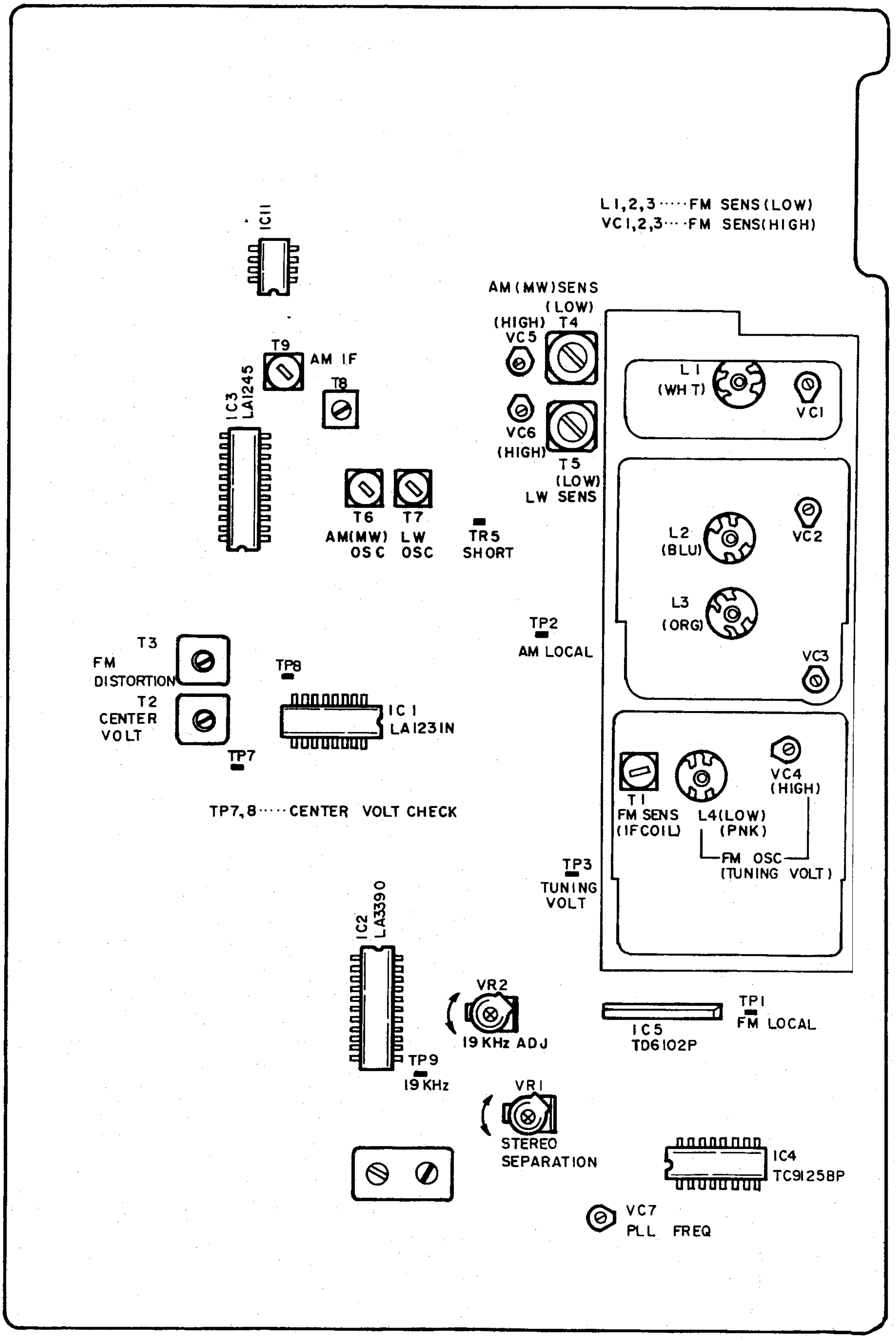

L1,2,3·····FM SENS(LOW)
VC1,2,3····FM SENS(HIGH)
IC11
AM(MW)SENS
(LOW)
(HIGH) T4
VC5
T9
AM IF
T8
IC3
LA1245
L1
(WHT)
VC1
VC6
(HIGH)
T5
(LOW)
LW SENS
T6
AM(MW)
OSC
T7
LW
OSC
TR5
SHORT
L2
(BLU)
VC2
L3
(ORG)
VC3
TP2
AM LOCAL
T3
FM
DISTORTION
T2
CENTER
VOLT
TP8
IC1
LA1231N
TP7
TP7,8·····CENTER VOLT CHECK
T1
FM SENS
(IFCOIL)
L4(LOW)
(PNK)
VC4
(HIGH)
FM OSC
(TUNING VOLT)
TP3
TUNING
VOLT
IC2
LA3390
VR2
19KHz ADJ
IC5
TD6102P
TP1
FM LOCAL
TP9
19KHz
VR1
STEREO
SEPARATION
IC4
TC9125BP
VC7
PLL FREQ

Fig. 3-11 Tuner PCB

1) AM (AA-R32L : MW) SECTION ADJUSTMENT (Refer to Figs. 3-11, 12)

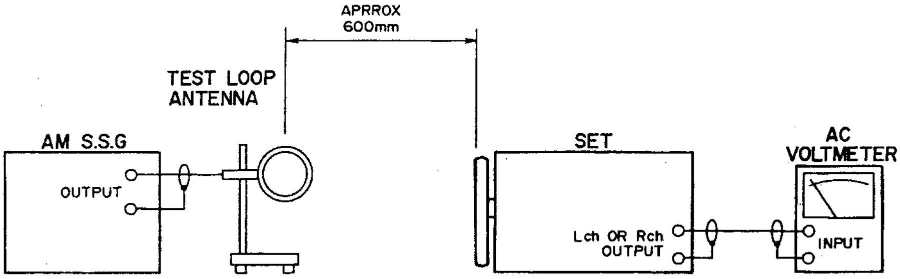


Fig. 3-12 · Instrument Connections for AM (MW, LW) Section Adjustment

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	PLL Frequency	VC7	Digital Display Indicating Freq. +10.7 MHz	Band SW to FM Connect Frequency Counter between TP1 and GND. (See NOTE)
2	AM (MW) OSC	T6	700 ± 1 kHz (AA-R32/R42) 730 ± 1 kHz (AA-R32L)	Band SW to AM (MW). Connect TP5 to GND. Connect Frequency Counter between TP2 and GND.
3	AM IF	T8, 9	Max Output	1,000 kHz (1008 kHz), 50 dB 400 Hz (30%) input.
4	Low Range Sensitivity 600 kHz (603 kHz)	T4	Max Output Distortion Factor: Less than 10%	600 kHz (603 kHz), 50 dB, 400 Hz (30%) input.
5	High Range Sensitivity 1,400 kHz (1,404 kHz)	VC5	Max Output Distortion Factor: Less than 10%	1,400 kHz (1,404 kHz), 50 dB, 400 Hz (30%) input.
6				Readjust in Steps 4 and 5.

NOTE: Digital display frequency +10.7 MHz means that when the display frequency of Digital Display is 100 MHz, it should be adjusted to 110.7 MHz.

2) LW SECTION ADJUSTMENT (AA-R32L only) (Refer to Figs. 3-11, 12)

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	LW OSC	T7	530 kHz ± 1 kHz	Band SW to LW. Connect TP5 to GND. Connect a Frequency Counter between TP2 and GND.
2	Low Range Sensitivity 155 kHz	T5	Max Output Distortion Factor: Less than 10%	155 kHz, 50 dB, 400 Hz (30%) input.
3	High Range Sensitivity 299 kHz	VC6	Max Output Distortion Factor: Less than 10%	299 kHz, 50 dB, 400 Hz (30%) input.
4				Readjust in Steps 2 and 3.

3) FM SECTION ADJUSTMENT (Refer to Figs. 3-11, 13)

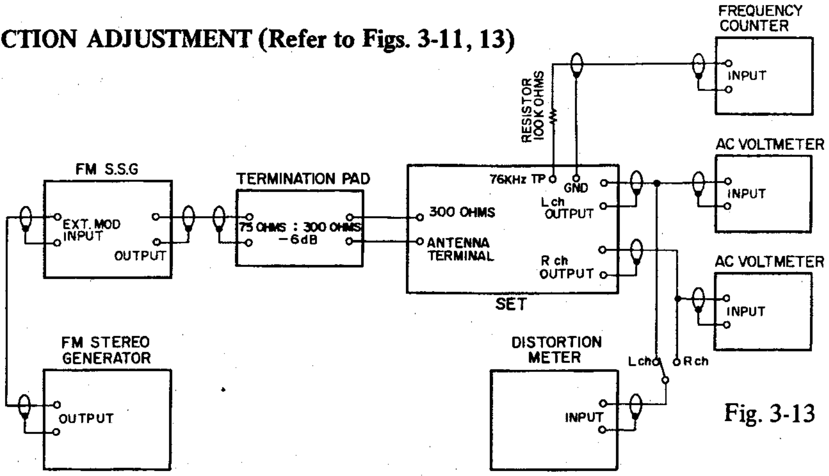

FREQUENCY COUNTER
INPUT
RESISTOR 100K OHMS
AC VOLTMETER
INPUT
FM S.S.G
EXT. MOD INPUT
OUTPUT
TERMINATION PAD
75 OHMS : 300 OHMS
-6dB
76KHz TP
GND
300 OHMS
ANTENNA TERMINAL
Lch OUTPUT
R ch OUTPUT
SET
AC VOLTMETER
INPUT
FM STEREO GENERATOR
OUTPUT
DISTORTION METER
INPUT
Lch
Rch

Fig. 3-13 Instruments Connection for FM Section Adjustment

Step	Adjustment Item	Adjustment Point	Result	Remarks
1	FM Tuning Voltage (LOW)	L4	3.2V	1) Band SW to FM 2) Display to 88 MHz. 3) Connect a digital Voltmeter between TP3 and GND.
2	FM Tuning Voltage (HIGH)	VC4	20V	Display to 108 MHz same as above.
3				Readjust in Steps 1 and 2.
4	PLL Frequency	VC7	Digital Display Indicating Frequency +10.7 MHz	Connect a Frequency counter between TP1 and GND. (See NOTE 1).
5	Low Range Sensitivity 88.0 MHz	L1, 2, 3 T1	Distortion Factor: Less than 3%	1) Mode SW to MONO. 2) 88 MHz less than 8 dB, 1 kHz (mono 100%) input.
6	High Range Sensitivity 108 MHz	VC1, 2, 3	Distortion Factor: Less than 3%	108 MHz, less than 8 dB, 1 kHz (mono 100%) input.
7				Readjust in Steps 5 and 6.
8	Center Voltage	T2	Center Tuning Meter Indication	1) Connect a Tuning Meter between TP7 and TP8. (See NOTE 2) 2) Tunes only noise without interference from broadcasting.
9	Distortion Factor	T3	Distortion Factor: Less than 0.3%	98 MHz, 60 dB, 1 kHz (mono, 100%) input.
10				Readjust in Steps 8 and 9.
11	MPX Free Running Frequency	VR2	19 kHz ± 50 Hz	Mode SW to FM Auto Connect a Frequency Counter between TP3 and GND. 98 MHz non-modulation signal input.
12	Stereo Separation	VR1	More than 40 dB	98 MHz, 60 dB, 1 kHz (Stereo 100%) Lch (Rch) input. Minimum output of Rch (Lch).

NOTES: 1. Digital display frequency +10.7 MHz means that when the display frequency of Digital Display is 100 MHz, it should be adjusted to 110.7 MHz.

2. For the Center Meter should be used the tuning meter and the like available as a part of the other models.

3. MODEL AA-R32/L, AA-R42 POWER LEVEL METER SENSITIVITY ADJUSTMENT (Refer to Figs. 3-14, 15)

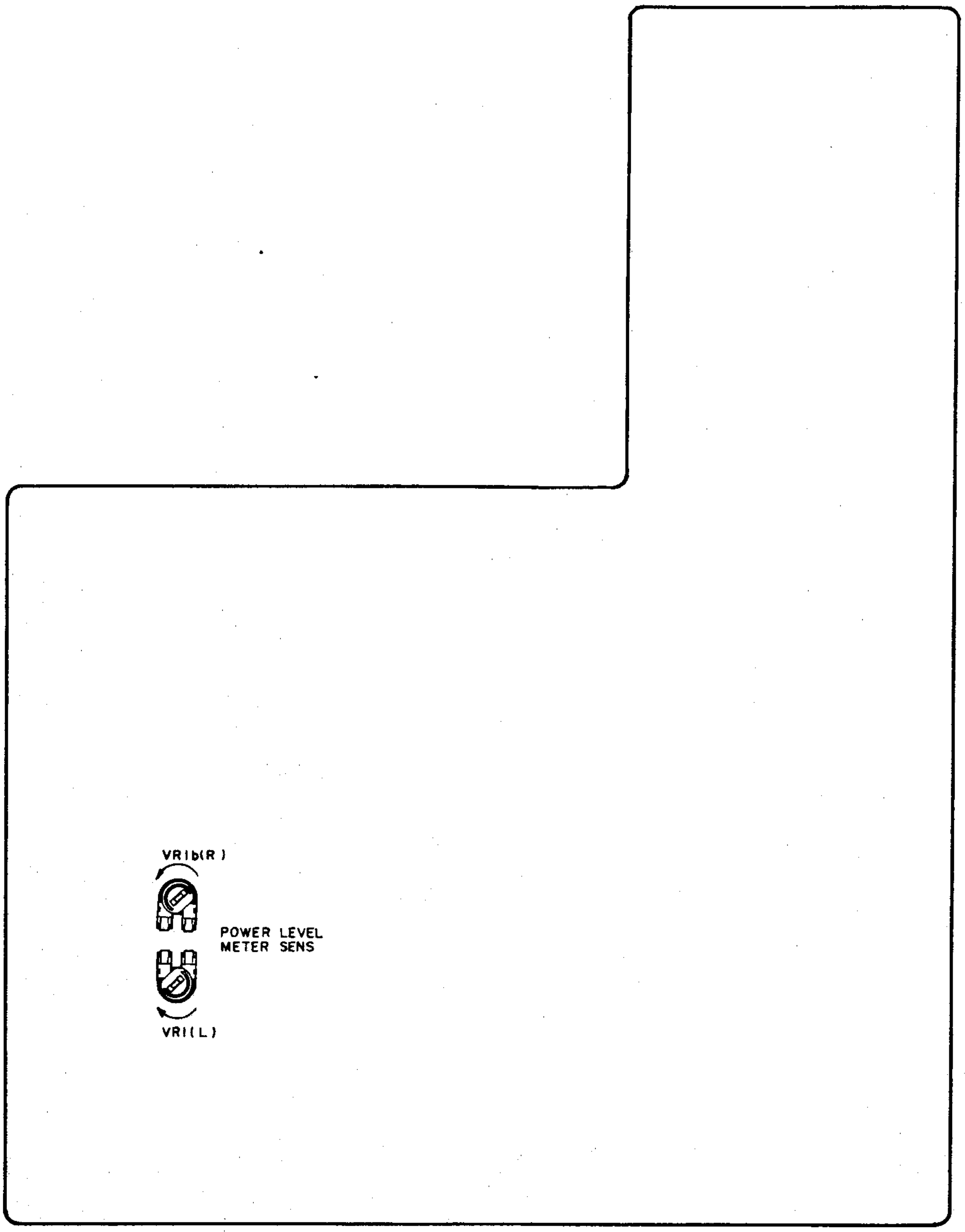

VR1b(R)
POWER LEVEL
METER SENS
VR1(L)

Fig. 3-14 Main Amp PCB

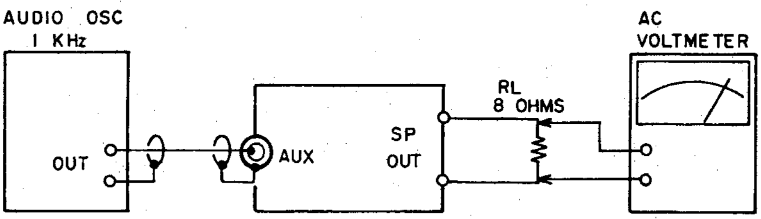

AUDIO OSC
1 KHz
OUT
AUX
SP
OUT
RL
8 OHMS
AC
VOLTMETER

Fig. 3-15 Instrument Connection for Power Level Meter Sensitivity

Connect the RL (8 ohms) resistors to Speaker Out. Then apply a 1 kHz signal to the AUX input terminals, adjusting the input level so as to obtain the rated output voltage level (15.5V) at Speaker Out. Adjust VR1 (5 kB) on the Main Amp P.C Board so that the 30 Watts Segment in the Power Level Meter lights up.

VII. CLASSIFICATION OF VARIOUS P.C BOARDS

1. MODEL AA-R32/L P.C BOARD TITLES AND IDENTIFICATION NUMBERS

1) MODEL AA-R32

P.C Board Title	P.C Board Number	Notes
Tuner P.C Board	A1004A5030	U
Tuner P.C Board	A1004A5031	C, A
Tuner P.C Board	A1004A5032	S
Control P.C Board	A1004A5040	
KEY Board (1) P.C Board	A1004A5020	
KEY Board (2) P.C Board	A1004B5010	
Main Amp P.C Board	A1004A505A	U
Main Amp P.C Board	A1004A506A	C, A
Main Amp P.C Board	A1004A507A	S
Head Phone P.C Board	A1004A505B	U
Head Phone P.C Board	A1004A506B	C, A
Head Phone P.C Board	A1004A507B	S
Bar Meter P.C Board	A1004A505C	U
Bar Meter P.C Board	A1004A506C	C, A
Bar Meter P.C Board	A1004A507C	S
Power P.C Board	A1004A505D	U
Power P.C Board	A1004A506D	C, A
Power P.C Board	A1004A507D	S

2) MODEL AA-R32L

P.C Board Title	P.C Board Number	Notes
Tuner P.C Board	A1004A5033	
Control P.C Board	A1004A5040	
KEY Board (1)	A1004A5020	
KEY Board (2)	A1004B5010	
Main Amp P.C Board	A1004A507A	
Headphone P.C Board	A1004A507B	
Bar Meter P.C Board	A1004A507C	
Power P.C Board	A1004A507D	

2. MODEL AA-R42 P.C BOARD TITLES AND IDENTIFICATION NUMBERS

P.C Board Title	P.C Board Number	Notes
Tuner P.C Board	A1005A5040	U
Tuner P.C Board	A1005A5041	C, A
Tuner P.C Board	A1005A5042	S
Control P.C Board	A1004A5040	
KEY Board (1) P.C Board	A1004A5020	
KEY Board (2) P.C Board	A1004B5010	
Main Amp P.C Board	A1005A501A	U
Main Amp P.C Board	A1005A502A	C, A
Main Amp P.C Board	A1005A503A	S
Head Phone P.C Board	A1005A501B	U
Head Phone P.C Board	A1005A502B	C, A
Head Phone P.C Board	A1005A503B	S
Bar Meter P.C Board	A1005A501C	U
Bar Meter P.C Board	A1005A502C	C, A
Bar Meter P.C Board	A1005A503C	S
Power P.C Board	A1005A501D	U
Power P.C Board	A1005A502D	C, A
Power P.C Board	A1005A503D	S

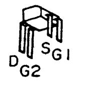
3. MODEL AA-R32/L COMPOSITION OF VARIOUS P.C BOARDS

1) MODEL AA-R32 TUNER P.C BOARD A1004A5030, 31, 32 (3ED)

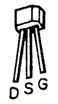
TR1	3SK73(Y)
TR2	2SC2999(C, D)
TR3	2SK212(D, E)
TR4	2SC930(E, F)
TR5	2SC3000(E, F)
TR6 to 8, 10, 18, 24 to 26	2SC536K-NP(E, F, G)
TR9, 23	2SA608K-NP(E, F, G)
TR21	2SD571(L, M)
TR22	2SD313HP(E, F)
TR27	2SK223(E, F)

LOCATION OF COMPONENTS

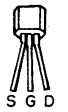
IC			
IC1	C2	TR8	E2
IC2	D2	TR9, 10	D2
IC3	B1	TR18	C1
IC4	E3	TR21	E1
IC5	D3	TR22 to 25	D1
IC11	A1	TR26, 27	D3
TR		**TERMINAL**	
TR1	B3	① to ⑤	E1
TR2	C3	⑥, ⑦	A3
TR3, 4	D2	J3	D1
TR5	C2	J6	D1
TR6, 7	C1	J10	E3
		J14	A3



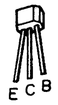
3SK73



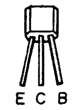
2SK212



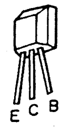
2SK223



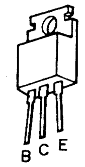
2SC2999



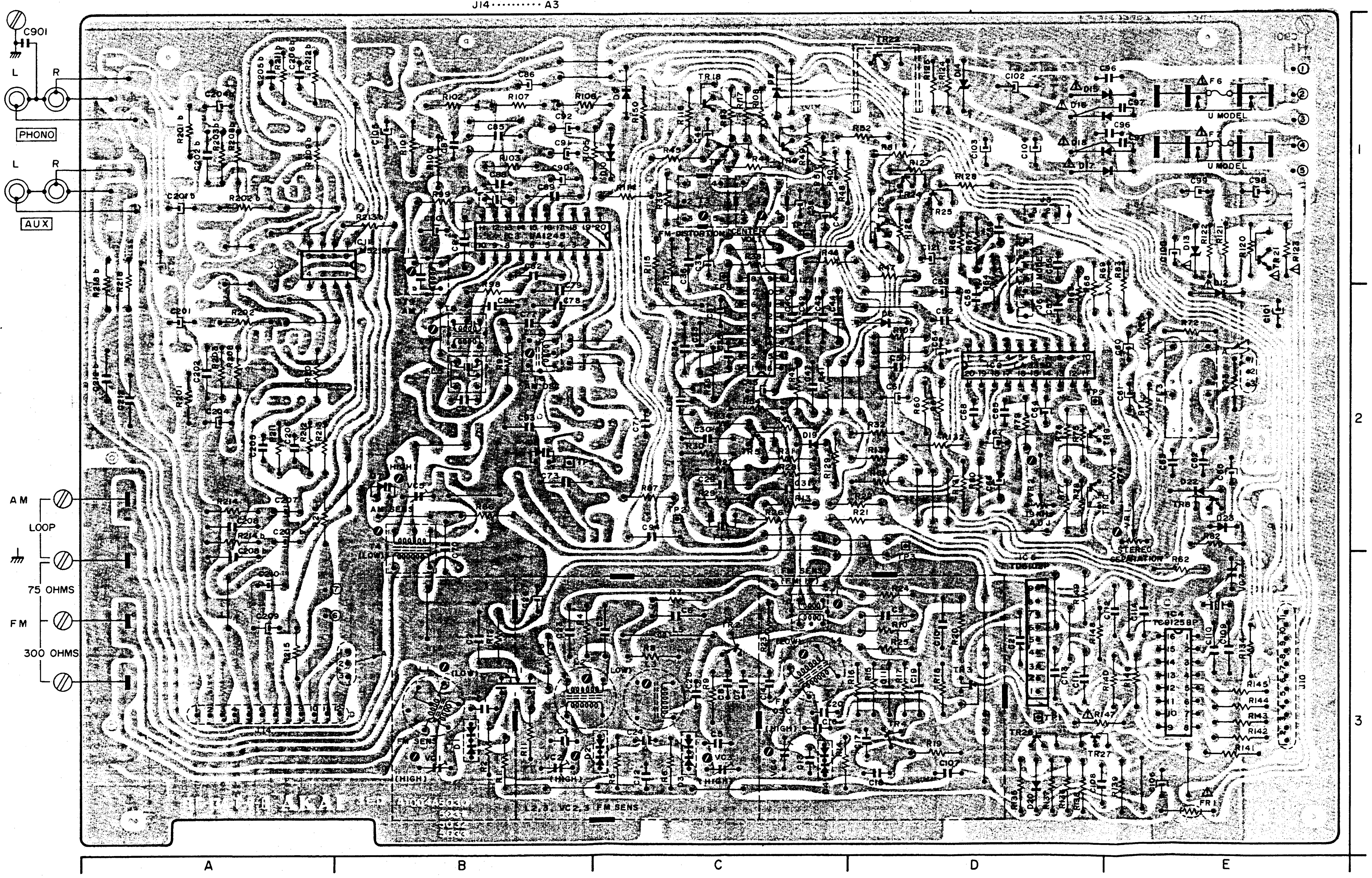
2SA608K-NP
2SC536K-NP
2SC930
2SC3000



2SD571



2SD313



TUNER PCB(U) A1004A5030
(A,C) A1004A5031
(S) A1004A5032

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

2) MODEL AA-R32L TUNER P.C BOARD A1004A5033 (3ED)

LOCATION OF COMPONENTS

IC

IC1.....C2
IC2.....D2
IC3.....B1
IC4.....E3
IC5.....D3
IC11....A1

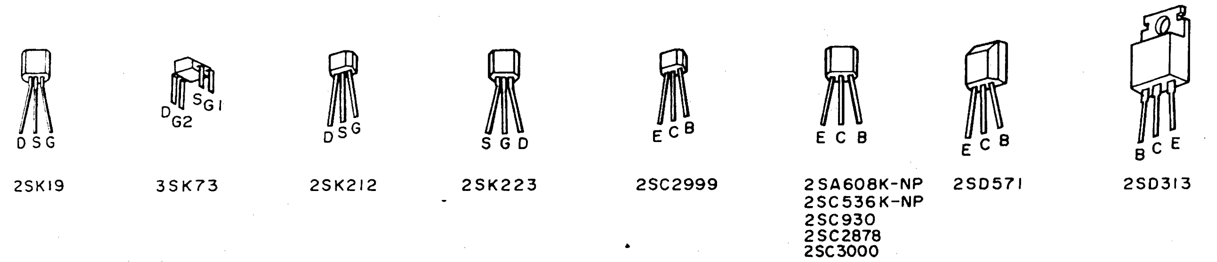
TR

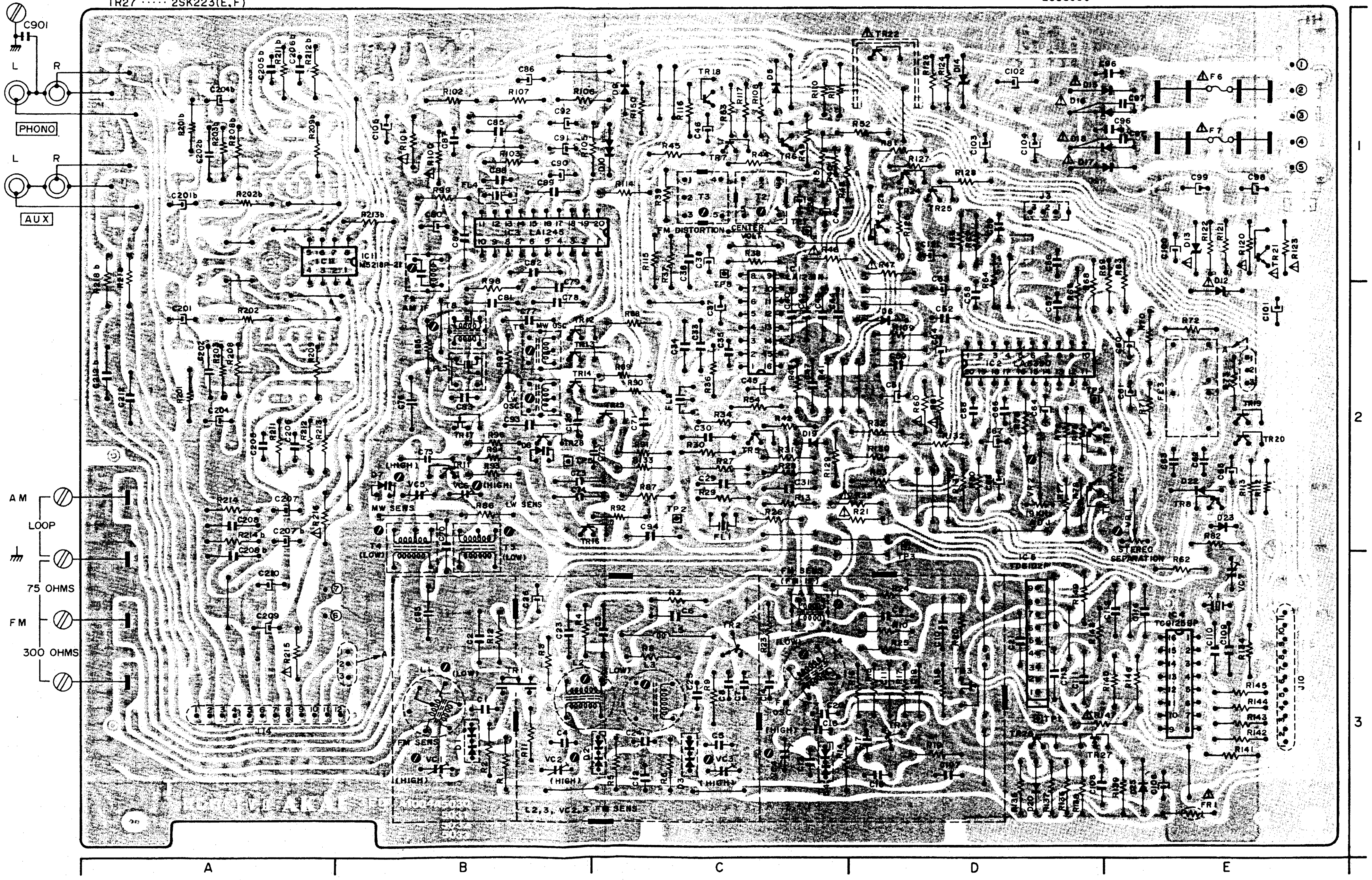
TR1.....B3
TR2.....C3
TR3,4...D2
TR5.....C2
TR6,7...C1
TR8.........E2
TR9,10.....D2
TR11to14...B2
TR15,16....C2
TR17.......B2
TR18.......C1
TR19,20....E2
TR21.......E1
TR22to25...D1
TR26,27....D3
TR28.......B2

TERMINAL

① to ⑤...E1
⑥ ⑦...A3
J3.......D1
J10......E3
J14......A3

TR1 ······ 3SK73(Y)
TR2 ······ 2SC2999(C,D)
TR3 ······ 2SK212(D,E)
TR4 ······ 2SC930(E,F)
TR5 ······ 2SC3000(E,F)
TR6 to 8,10,16,18 to 20,24 to 26,28
······ 2SC536K-NP(E,F,G)
TR9,12 to 15,23
······ 2SK608K-NP(E,F,G)
TR11 ······ 2SC2878(A,B)
TR17 ······ 2SK19(O,Y)
TR21 ······ 2SD571(L,M)
TR22 ····· 2SD313HP(E,F)
TR27 ····· 2SK223(E,F)


D S G
2SK19
D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571
B C E
2SD313


C901
L
R
PHONO
L
R
AUX
AM
LOOP
75 OHMS
FM
300 OHMS
FM DISTORTION
CENTER
MW SENS
LW SENS
FM SENS
STEREO SEPARATION
①
②
③
④
⑤
1
2
3
A
B
C
D
E

TUNER PCB A1004A5033

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

3) MODEL AA-R32/L CONTROL P.C BOARD A1004A5040(3ED)

LOCATION OF COMPONENTS

IC

IC1-----D3
IC2-----D,E1
IC3-----C3
IC4-----C2
IC5-----E2
IC6-----E3
IC7-----E2
IC8-----E1
IC9-----C1
IC10-----E3
IC11-----B3
IC12,13---B2
IC14-----B3
IC15-----A2
IC16,17---A3

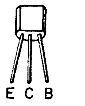
TR

TR1---D3
TR2---B1

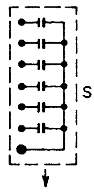
TERMINAL

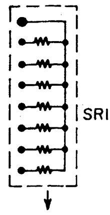
①,②-----C2
③-------D2
④,⑤,⑥---E3
⑧ to ⑪---A1

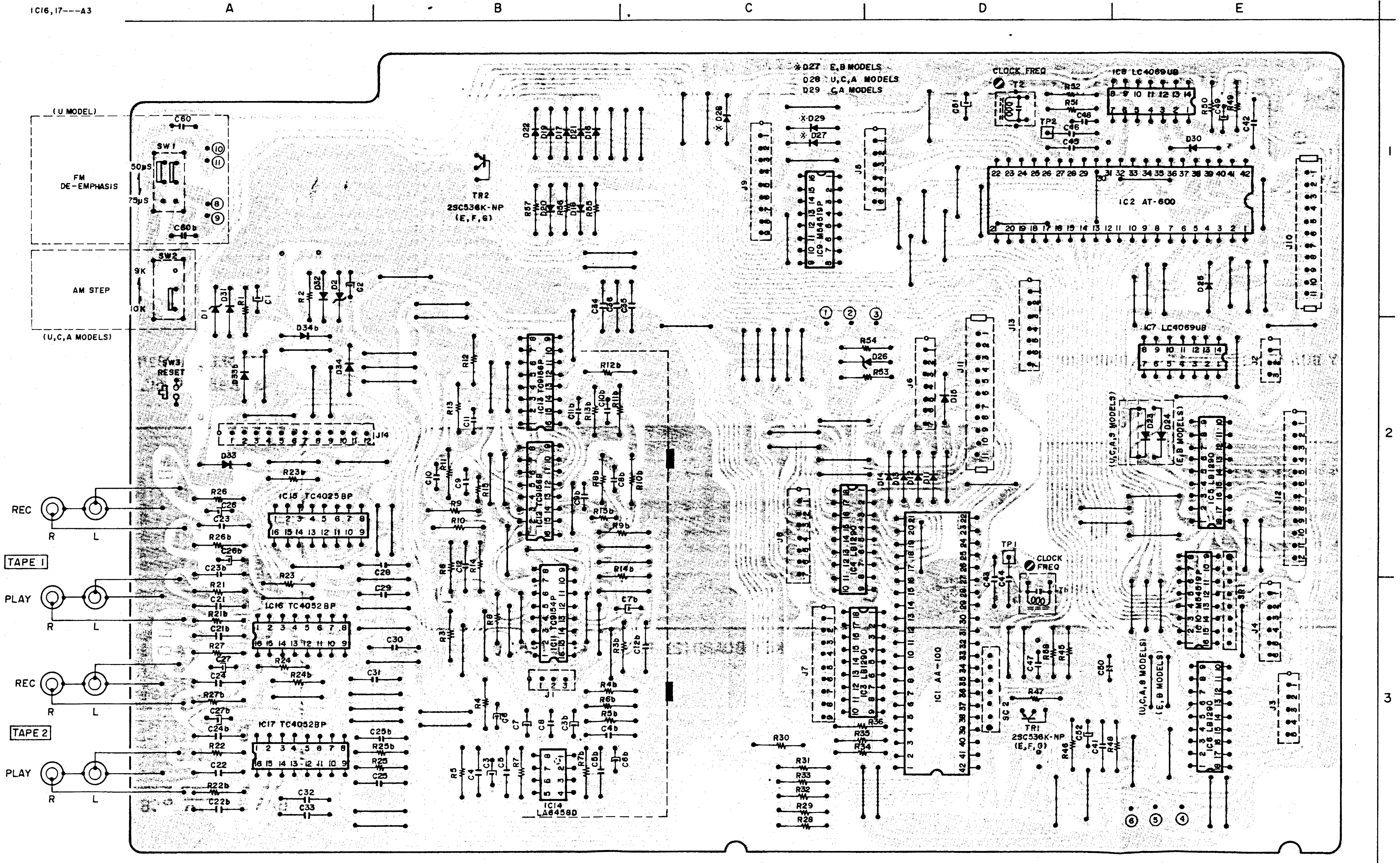
J1-----B3
J2-----E2
J3,4---E3
J5-----D1
J6-----D2
J7-----C3
J8-----C2
J9-----C1
J10-----E1
J11-----D2
J12-----E2
J13-----D2
J14-----A2



2SC536K-NP

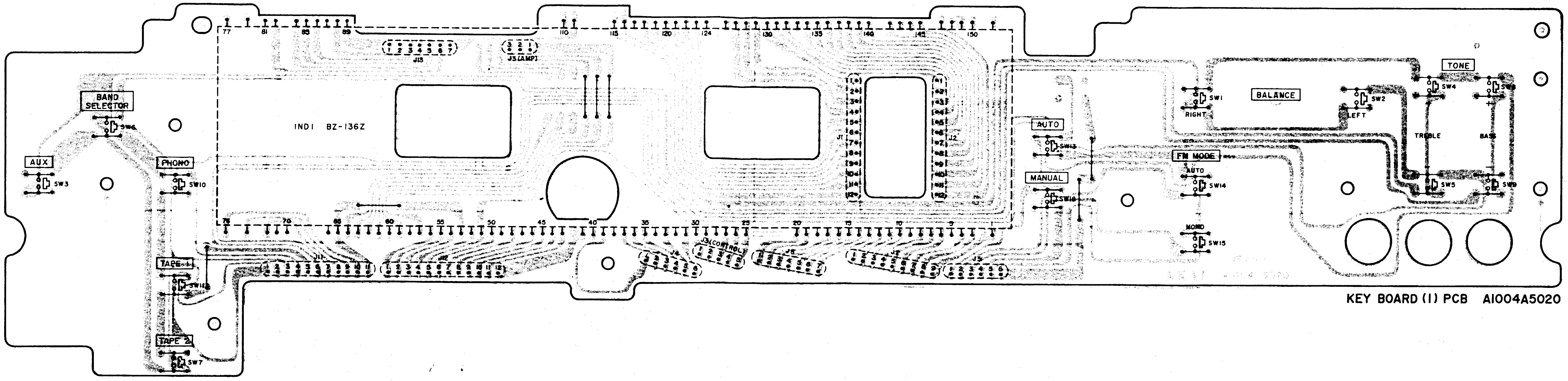




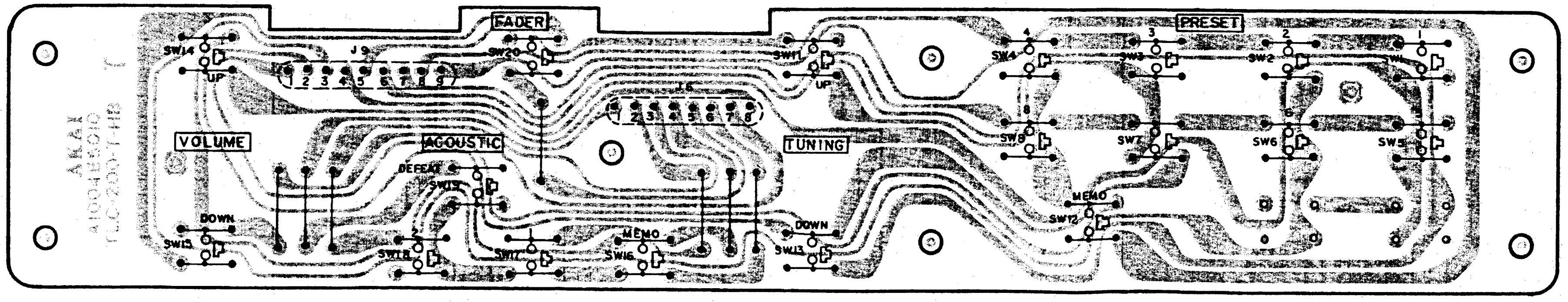

A
B
C
D
E
1
2
3
(U MODEL)
C60
SW1
FM
DE-EMPHASIS
50μS
75μS
C60b
⑧
⑨
⑩
⑪
AM STEP
SW2
9K
10K
(U,C,A MODELS)
SW3
RESET
REC
TAPE 1
PLAY
REC
TAPE 2
PLAY
R
L
TR2
2SC536K-NP
(E,F,G)
※D27 E,B MODELS
D28 U,C,A MODELS
D29 C,A MODELS
CLOCK FREQ
T2
TP2
IC8 LC4069UB
IC2 AT-600
IC9 M54619P
IC7 LC4069UB
IC13 TC9156P
IC12 TC9156P
IC11 TC9154P
IC14 LA6458D
IC15 TC4025BP
IC16 TC4052BP
IC17 TC4052BP
IC1 AA-100
IC3 LB1290
IC4 LB1290
IC5 LB1290
IC6 LB1290
IC10 M54619P
TP1
CLOCK FREQ
TR1
2SC536K-NP
(E,F,G)
SC2
SR1
(U,C,A,B MODELS)
(E,B MODELS)
J1
J2
J3
J4
J6
J7
J8
J9
J10
J11
J12
J13
J14
①
②
③
④
⑤
⑥

CONTROL PCB A1004A5040

4) MODEL AA-R32/L KEY BOARD (1) P.C BOARD A1004A5020

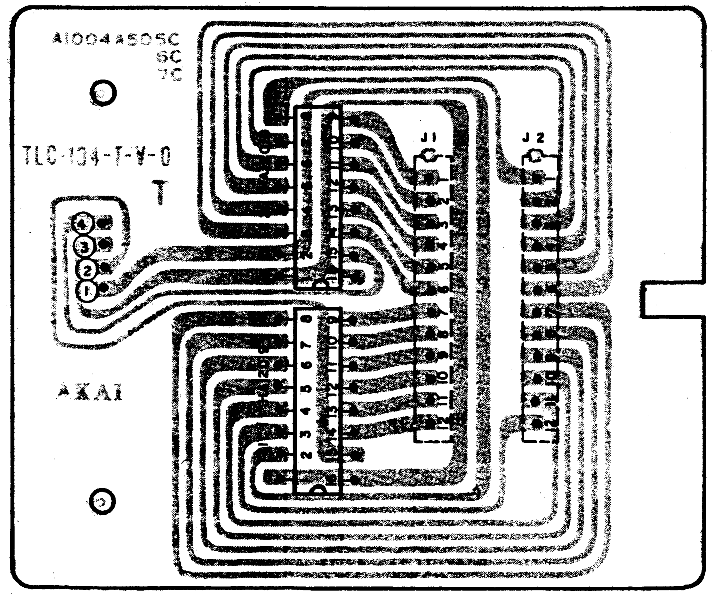

BAND SELECTOR
SW6
AUX
SW3
PHONO
SW10
TAPE 1
SW12
TAPE 2
SW7
INDI BZ-136Z
J13
J3(AMP)
J1
J2
J11
J12
J3(CONTROL)
AUTO
SW13
MANUAL
SW16
BALANCE
SW1
RIGHT
SW2
LEFT
TONE
SW4
SW8
TREBLE
BASS
FM MODE
AUTO
SW14
MONO
SW15
SW5
SW9
KEY BOARD (1) PCB A1004A5020

5) MODEL AA-R32/L KEY BOARD (2) P.C BOARD A1004B5010


FADER
PRESET
SW14
UP
J9
SW20
SW11
UP
J6
SW4
SW3
SW2
SW1
VOLUME
ACOUSTIC
DEFEAT
SW19
TUNING
SW8
SW7
SW6
SW5
MEMO
SW12
DOWN
SW15
SW18
SW17
SW16
MEMO
DOWN
SW13
AKAI

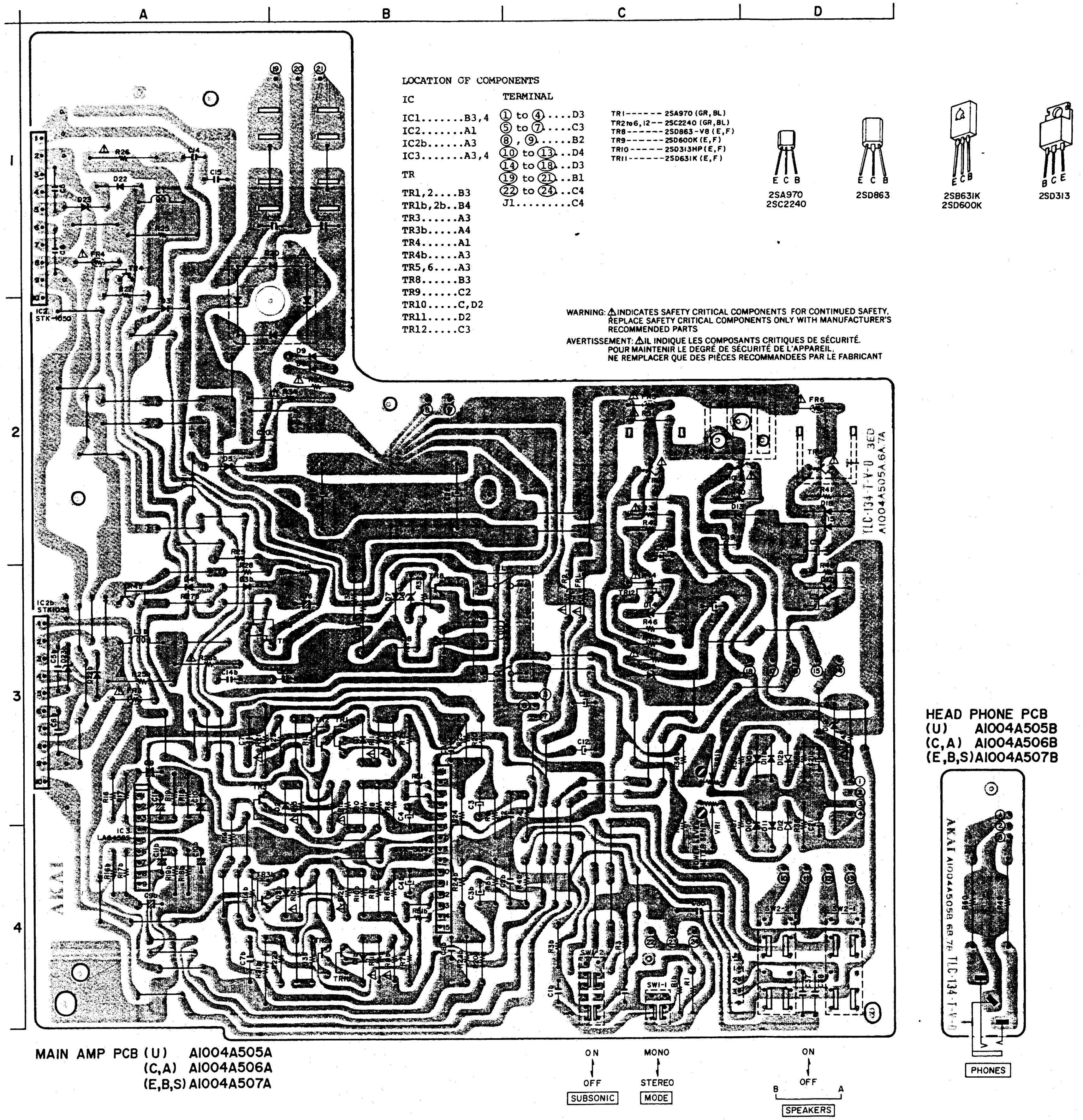
KEY BOARD (2) PCB A1004B5010

6) MODEL AA-R32/L BAR METER P.C BOARD A1004B505C, 6C, 7C


A1004A505C
6C
7C
TLC-104-T-V-0
J1
J2
AKAI

BAR METER PCB (U) A1004A505C
(C, A) A1004A506C
(E, B, S) A1004A507C

7) MODEL AA-R32/L MAIN AMP P.C BOARD A1004A505A, 6A, 7A(3ED)and HEADPHONE P.C BOARD A1004A505B, 6B, 7B


A
B
C
D
1
2
3
4
E C B
2SA970
2SC2240
E C B
2SD863
E C B
2SB631K
2SD600K
B C E
2SD313
IC2 STK-4050
IC2b STK4050
IC3
AKAI
TLC-134-T-V-0 3ED
A1004A505A 6A 7A
FR6
SW1-1
ON
OFF
SUBSONIC
MONO
STEREO
MODE
ON
OFF
B
A
SPEAKERS
AKAI A1004A505B 6B 7B TLC-134-T-V-0
PHONES

LOCATION OF COMPONENTS

IC	TERMINAL
IC1.......B3,4	① to ④....D3
IC2.......A1	⑤ to ⑦....C3
IC2b......A3	⑧ , ⑨.....B2
IC3.......A3,4	⑩ to ⑬...D4
	⑭ to ⑱...D3
	⑲ to ㉑...B1
	㉒ to ㉔...C4
	J1.........C4

TR

TR1,2....B3
TR1b,2b..B4
TR3......A3
TR3b.....A4
TR4......A1
TR4b.....A3
TR5,6....A3
TR8......B3
TR9......C2
TR10.....C,D2
TR11.....D2
TR12.....C3

TR1------ 2SA970 (GR, BL)
TR2to6, 12-- 2SC2240 (GR, BL)
TR8------- 2SD863-V8 (E, F)
TR9------- 2SD600K (E, F)
TR10------ 2SD313HP (E, F)
TR11------ 2SD631K (E, F)

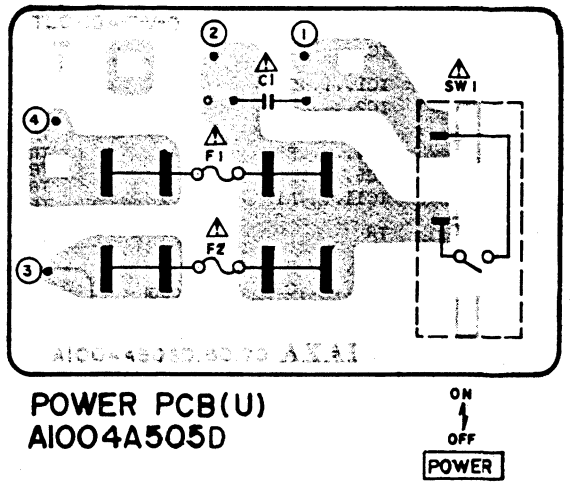
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

MAIN AMP PCB (U) A1004A505A
(C,A) A1004A506A
(E,B,S) A1004A507A

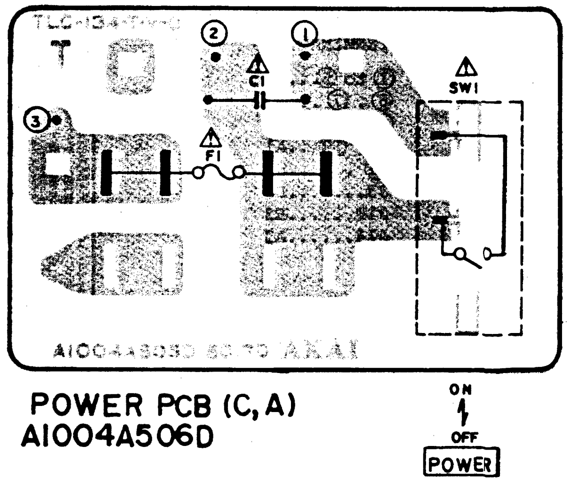
HEAD PHONE PCB
(U) A1004A505B
(C,A) A1004A506B
(E,B,S) A1004A507B

8) MODEL AA-R32 POWER P.C BOARD (U)
A1004A505D


TLC-134-T-V-0
②
①
④
③
⚠ C1
⚠ F1
⚠ F2
⚠ SW1
A1004A505D 6D 7D AKAI
ON
OFF
POWER

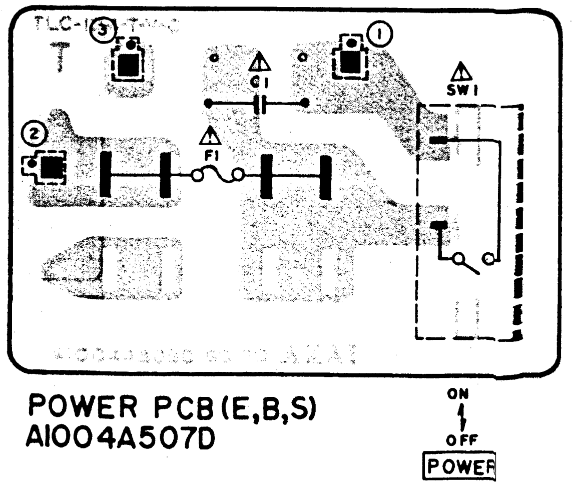
POWER PCB(U)
A1004A505D

9) MODEL AA-R32 POWER P.C BOARD (C, A)
1004A506D


TLC-134-T-V-0
T
②
①
③
⚠ C1
⚠ F1
⚠ SW1
A1004A505D 6D 7D AKAI
ON
OFF
POWER

POWER PCB (C, A)
A1004A506D

10) MODEL AA-R32/L POWER P.C BOARD (E, B, S)
1004A507D


TLC-134-T-V-0
T
③
①
②
⚠ C1
⚠ F1
⚠ SW1
A1004A505D 6D 7D AKAI
ON
OFF
POWER

POWER PCB (E,B,S)
A1004A507D

4. MODEL AA-R42 COMPOSITION OF VARIOUS P.C BOARD

1) TUNER P.C BOARD A1005A5040, 41, 42 (3ED)

LOCATION OF COMPONENTS

IC

IC1.....C2
IC2.....D2
IC3.....B1
IC4.....E3
IC5.....D3
IC11....A1

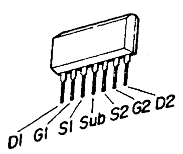
TR

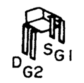
TR1.....B3
TR2.....C3
TR3,4...D2
TR5.....C2
TR6,7...C1
TR8........E2
TR9,10.....D2
TR11to14...B2
TR15,16....C2
TR17.......B2
TR18.......C1
TR19,20....E2
TR21.......E1
TR22to25...D1
TR16,17....D3
TR28.......B2
TR35.......A2
TR35b......A1

TERMINAL

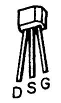
① to ⑤...E1
⑥ , ⑦ ...A3
⑧ A2
⑨ , ⑩ ..A1
⑪ B1
J3.......D1
J10......E3
J14......A3

TR1 ······ 3SK73(Y)
TR2 ······ 2SC2999(C,D)
TR3 ······ 2SK212(D,E)
TR4 ······ 2SC930(E,F)
TR5 ······ 2SC3000(E,F)
TR6to8,10,18,24to26
··· 2SC536K-NP(E,F,G)
TR9,23··· 2SA608K-NP(E,F,G)
TR21 ····· 2SD571(L,M)
TR22 ····· 2SD313HP(E,F)
TR27 ····· 2SK223(E,F)
TR35 ····· 2SK270

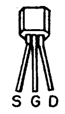

D1
G1
S1
Sub
S2
G2
D2
2SK270



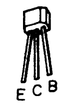
3SK73



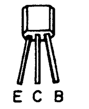
2SK212



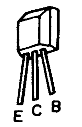
2SK223



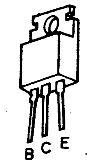
2SC2999



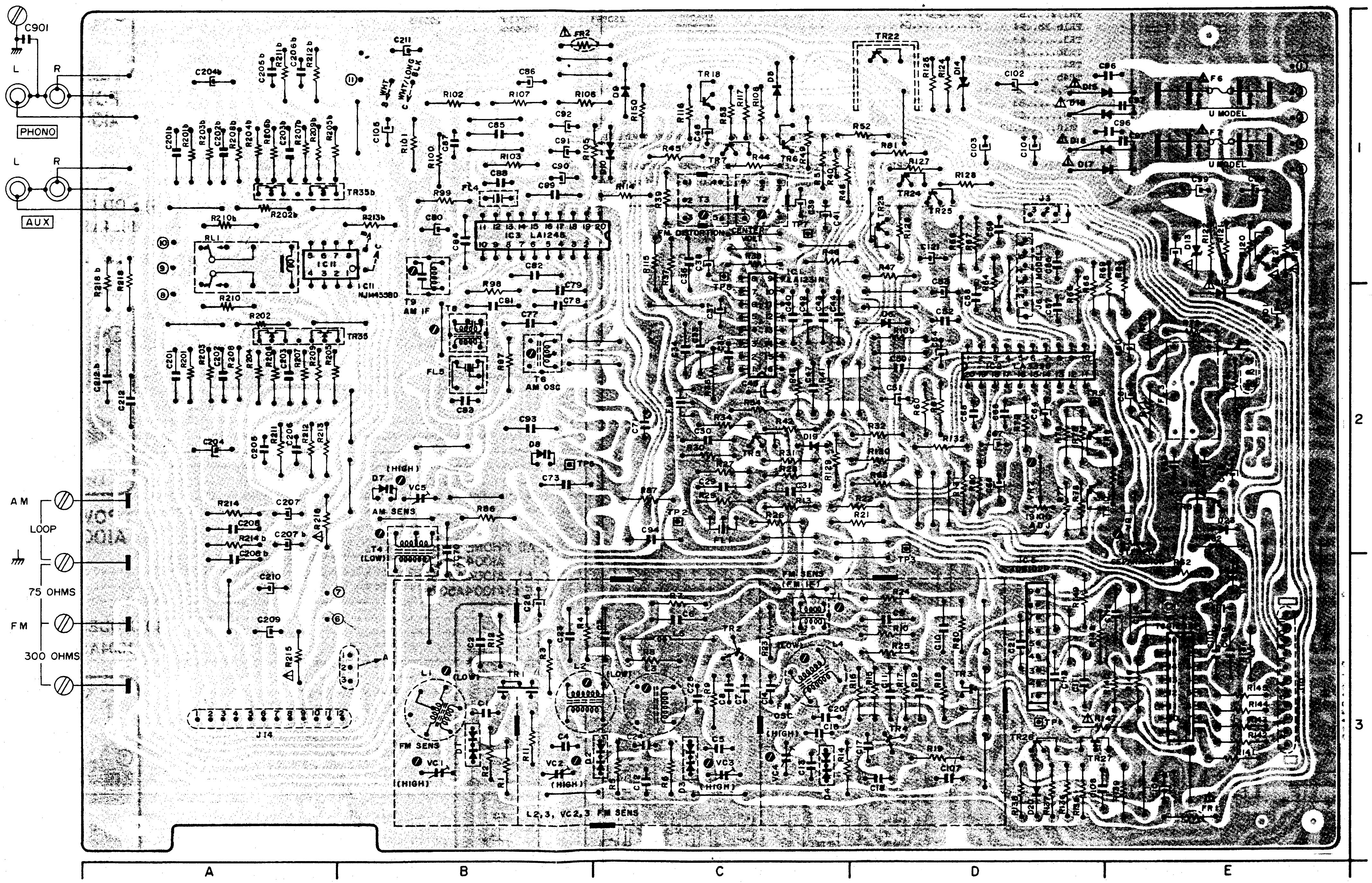
2SA608K-NP
2SC536K-NP
2SC930
2SC3000



2SD571



2SD313


C901
L
R
PHONO
L
R
AUX
AM
LOOP
75 OHMS
FM
300 OHMS
IC3 LA1245
IC11
NJM4558D
RL1
TR35
TR35b
T9
AM IF
T6
AM OSC
AM SENS
FM SENS
FM DISTORTION
CENTER
TR22
TR18
U MODEL
J14
L2,3, VC2,3 FM SENS
VC1
VC2
VC3
TR1
(HIGH)
(LOW)
A
B
C
D
E
1
2
3
TUNER PCB(U) A1005A5040
(A,C) A1005A5041
(S) A1005A5042

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

2) CONTROL P.C BOARD A1004A5040 (3ED)

LOCATION OF COMPONENTS

IC

IC1------D3
IC2-----D,E1
IC3------C3
IC4------C2
IC5-----E2
IC6------E3
IC7------E2
IC8-----E1
IC9-----C1
IC10-----E3
IC11-----B3
IC12,13--B2
IC14-----B3
IC15-----A2
IC16,17---A3

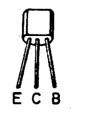
TR

TR1--D3
TR2--B1
TR3,4-D3

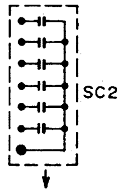
TERMINAL

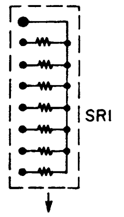
①,②----C2
③------D2
④,⑤,⑥---E3
⑧ to ⑪---A1
⑦-------D3

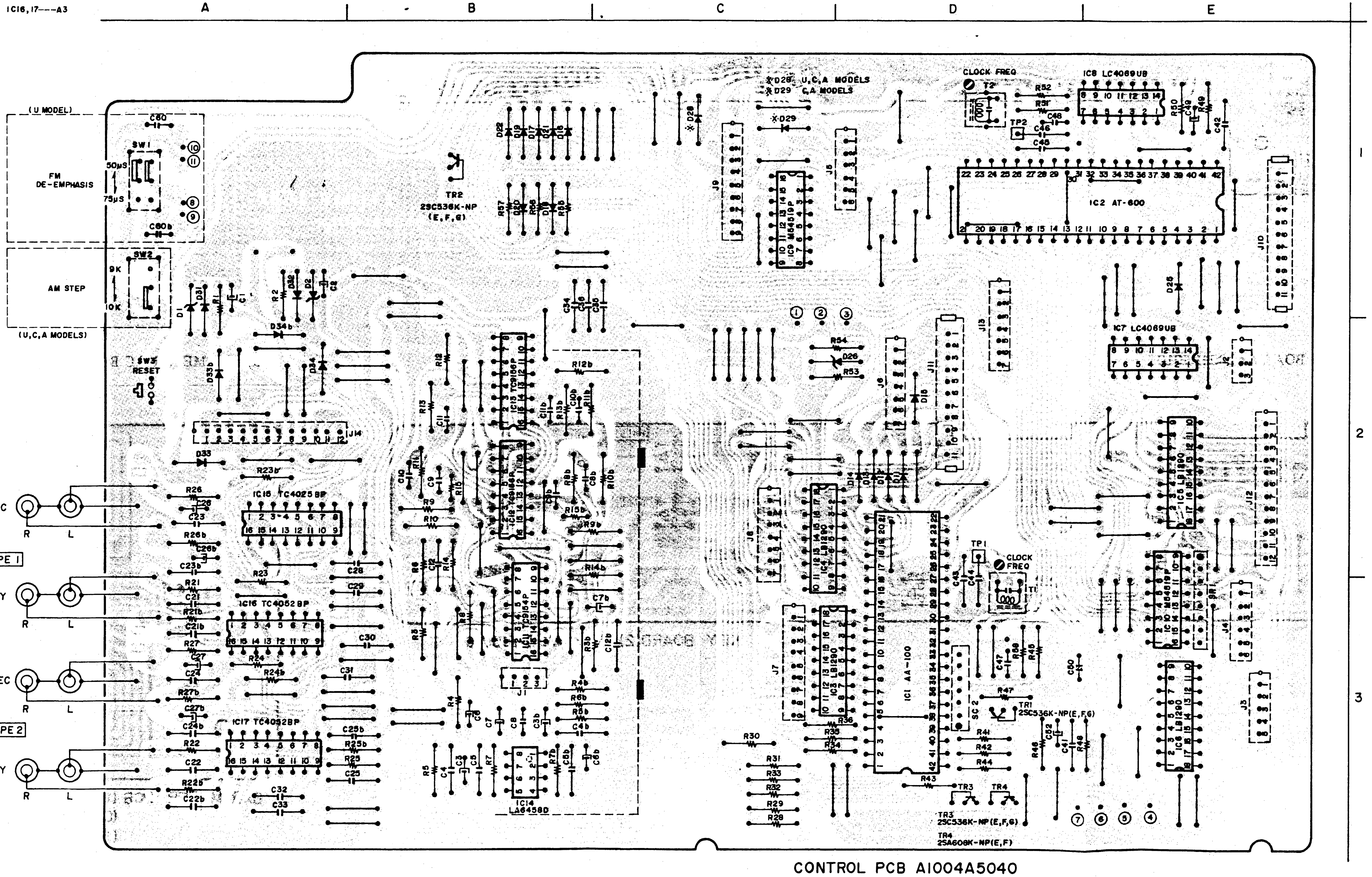
J1-----B3
J2-----E2
J3,4---E3
J5-----D1
J6-----D2
J7-----C3
J8-----C2
J9-----C1
J10----E1
J11-----D2
J12-----E2
J13-----D2
J14-----A2



2SC536K-NP
2SA608K-NP

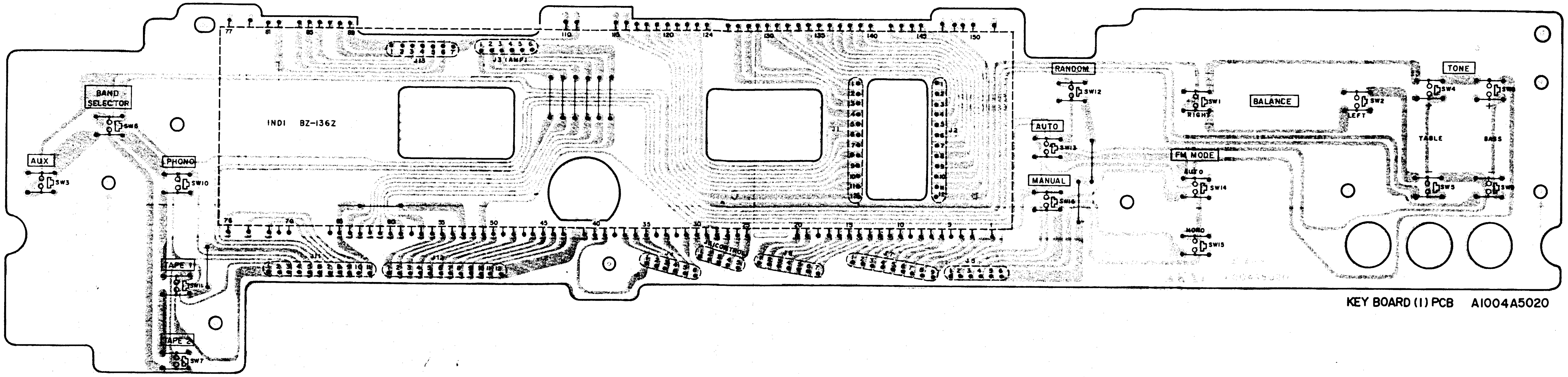





A
B
C
D
E
1
2
3
(U MODEL)
FM DE-EMPHASIS
50μS
75μS
SW1
C60
C60b
AM STEP
9K
10K
SW2
(U,C,A MODELS)
SW3 RESET
TR2 2SC536K-NP (E,F,G)
D28 U,C,A MODELS
D29 C,A MODELS
CLOCK FREQ
IC8 LC4069UB
IC2 AT-600
IC9 M54519P
IC7 LC4069UB
IC15 TC4066BP
IC12 TC4066BP
IC13 TC4066BP
IC11 TC4066BP
IC16 TC4025BP
IC16 TC4052BP
IC17 TC4052BP
IC14 LA6458D
IC4 LB1290
IC3 LB1290
IC1 AA-100
IC5 LB1290
IC10 M54519P
IC6 LB1290
TP1
TP2
T1
T2
TR1 2SC536K-NP(E,F,G)
TR3 2SC536K-NP(E,F,G)
TR4 2SA608K-NP(E,F)
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
SC2
SR1
REC
PLAY
TAPE 1
TAPE 2
R
L

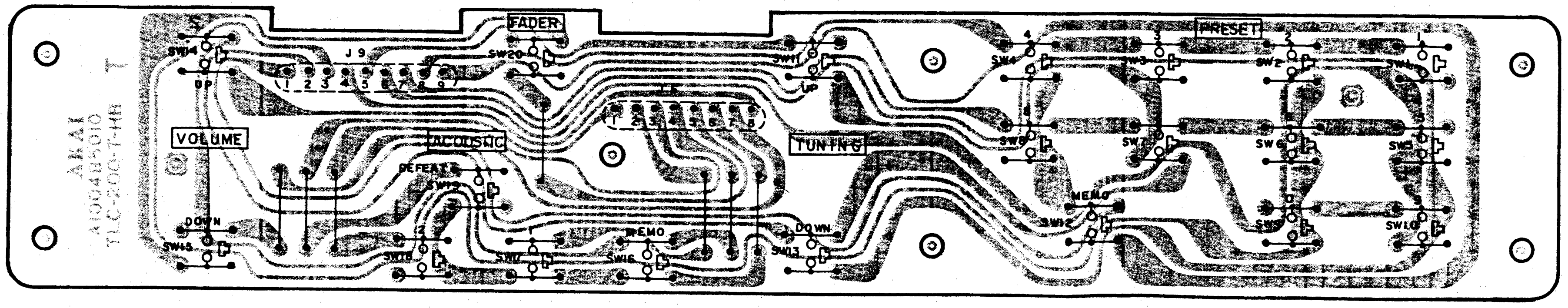
CONTROL PCB A1004A5040

3) KEY BOARD (1) P.C BOARD A1004A5020


BAND SELECTOR
SW6
AUX
SW3
PHONO
SW10
TAPE 1
SW11
TAPE 2
SW7
INDI BZ-136Z
J13
J3 (AMP)
J1
J2
J4 (CONTROL)
J5
RANDOM
SW12
AUTO
SW13
MANUAL
SW16
FM MODE
AUTO
SW14
MONO
SW15
BALANCE
SW1
RIGHT
SW2
LEFT
TONE
SW4
SW3
TREBLE
BASS

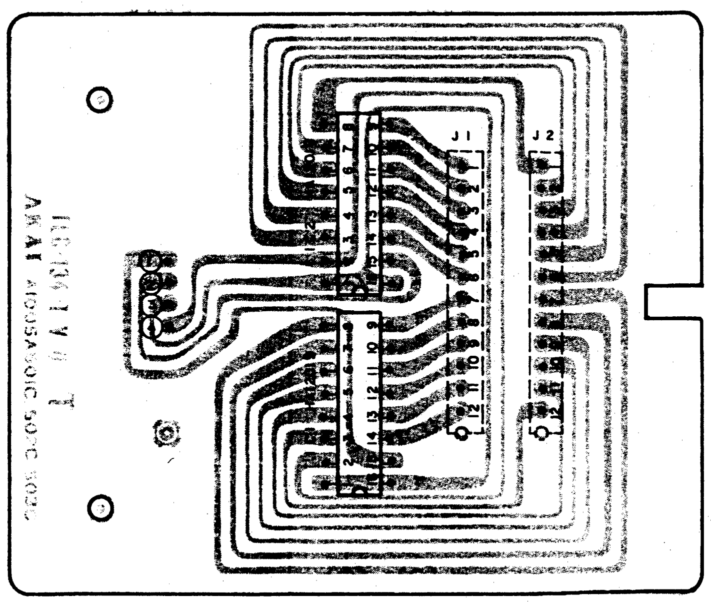
KEY BOARD (1) PCB A1004A5020

4) KEY BOARD (2) P.C BOARD A1004B5010


AKAI
A1004B5010
TLC-200-T-HB
SW14
UP
VOLUME
DOWN
SW45
J9
FADER
SW20
ACOUSTIC
DEFEAT
SW18
SW17
MEMO
SW16
TUNING
UP
DOWN
SW13
PRESET
SW4
SW3
SW2
SW1
SW8
SW7
SW6
SW5
MEMO
SW12
SW9
SW10

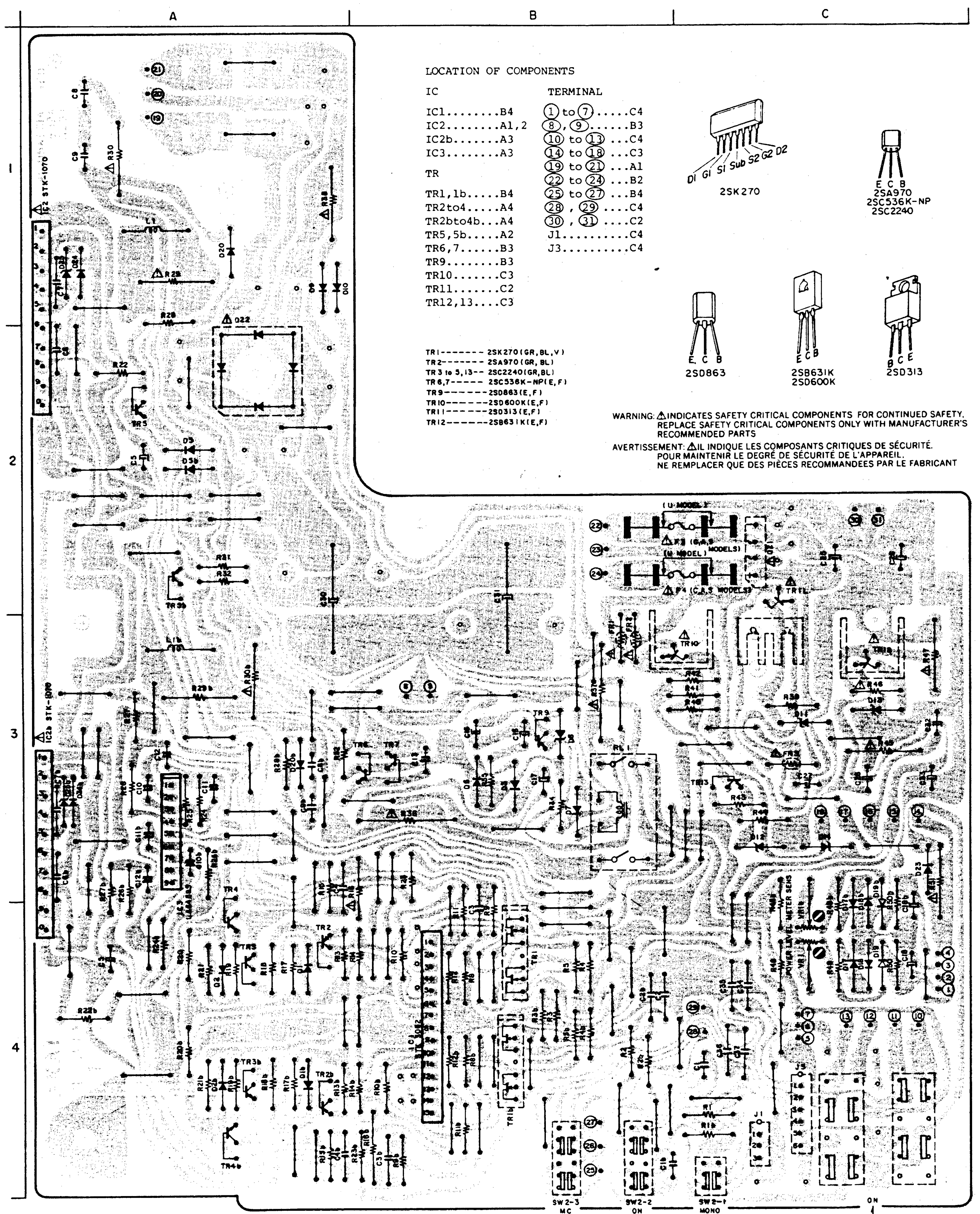
KEY BOARD(2) PCB A1004B5010

5) BAR METER P.C BOARD A1005A501C, 2C, 3C


J1
J2
AKAI
A1005A501C

BAR METER PCB (U) A1005A501C
(C, A) A1005A502C
(S) A1005A503C

6) MAIN AMP P.C BOARD A1005A501A, 2A, 3A(3ED) and HEADPHONE P.C BOARD A1005A501B, 2B, 3B


A
B
C
1
2
3
4
IC2 STK-1070
IC2b STK-1070
D1 G1 S1 Sub S2 G2 D2
2SK270
E C B
2SA970
2SC536K-NP
2SC2240
E. C B
2SD863
E C B
2SB631K
2SD600K
B C E
2SD313
(U-MODEL)
F3 (C,A,S MODELS)
(U MODEL)
F4 (C,A,S MODELS)
SW2-3
MC
MM
SW2-2
ON
OFF
SW2-1
MONO
STEREO
ON
B
OFF
A
CARTRIDGE
SUBSONIC
MODE
SPEAKERS

LOCATION OF COMPONENTS

IC

IC1........B4
IC2........A1,2
IC2b.......A3
IC3........A3

TR

TR1,1b.....B4
TR2to4.....A4
TR2bto4b...A4
TR5,5b.....A2
TR6,7......B3
TR9........B3
TR10.......C3
TR11.......C2
TR12,13....C3

TERMINAL

① to ⑦.....C4
⑧, ⑨......B3
⑩ to ⑬ ...C4
⑭ to ⑱ ...C3
⑲ to ㉑ ...A1
㉒ to ㉔ ...B2
㉕ to ㉗ ...B4
㉘, ㉙ C4
㉚, ㉛ C2
J1..........C4
J3..........C4

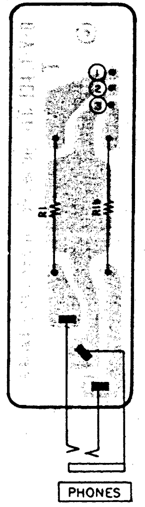
TR1-------- 2SK270(GR,BL,V)
TR2-------- 2SA970(GR,BL)
TR3 to 5,13-- 2SC2240(GR,BL)
TR6,7------ 2SC536K-NP(E,F)
TR9--------2SD863(E,F)
TR10--------2SD600K(E,F)
TR11--------2SD313(E,F)
TR12--------2SB631K(E,F)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

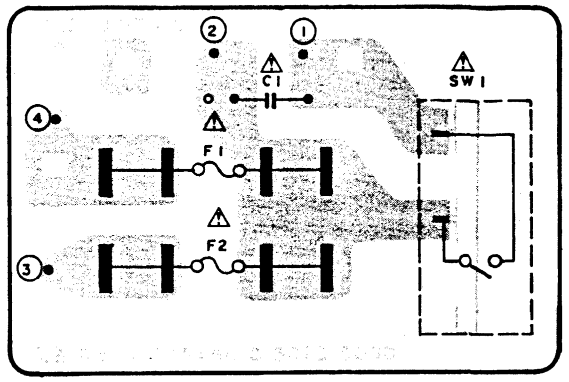
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

MAIN AMP PCB(U) A1005A501A
(C,A) A1005A502A
(S) A1005A503A

HEAD PHONE PCB
(U) A1005A501B
(C,A) A1005A502B
(S) A1005A503B

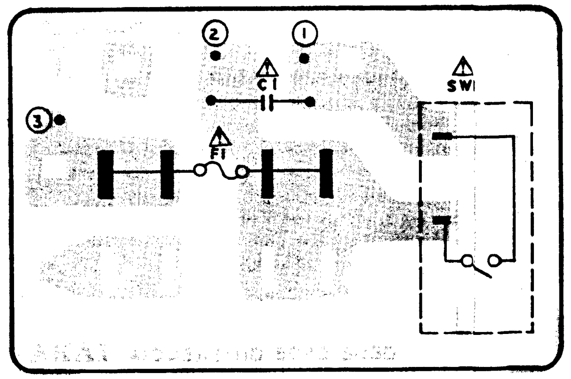


7) POWER P.C BOARD (U) A1005A501D


②
①
④
③
C1
F1
F2
SW1
ON
OFF
POWER

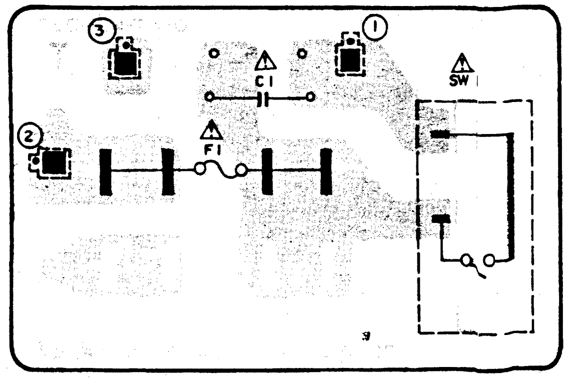
POWER PCB(U)
A1005A501D

8) POWER P.C BOARD (C, A) A1005A502D


②
①
③
C1
F1
SW1
ON
OFF
POWER

POWER PCB (C,A)
A1005A502D

9) POWER P.C BOARD (S) A1005A503D


③
①
②
C1
F1
SW1
ON
OFF
POWER

POWER PCB(S)
A1005A503D

MEMO

SECTION 4

PARTS LIST

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Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

b) P.C Board Block

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT.

I. AA-R22/L

RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

NO.	PARTS NO.	DESCRIPTION
1	BT-343358	⚠ TRANS POWER AA-R22T-20 (A)
2	BT-343357	⚠ TRANS POWER AA-R22T-30 (C)
3	BT-343359	⚠ TRANS POWER AA-R22T-40 (E)
4	BT-343360	⚠ TRANS POWER AA-R22T-50 (S,B)
5	BT-343356	⚠ TRANS POWER AA-R22T-70 (U)
6	EC-344480	C COMP 05-0009
7	EC-344157	C DOUBLE LAYER 473Z 5.5DC
8	EC-330692	C S-FIX H TZ03R200E 4.2-20
9	EC-337772	C S-FIX H TZ03Z070E 2.0-7
10	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
11	ED-343413	⚠ D ZENER H 05Z15 X, Y
12	ED-343412	⚠ D ZENER H 05Z6.2 X, Y
13	ED-200213	D SILICON DBA40C-K15 200/2.6A
14	ED-200469	D SILICON H DS448 FA5 F10
15	ED-200468	D SILICON V DS448-VB6
16	ED-336832	D VARACTOR SVC211SP
17	ED-337605	D VARACTOR SVC333 (A) DOUBLE
18	ED-323057	D VARISTER MV12
19	ED-345149	D ZENER H HZ15L 3
20	ED-337990	D ZENER H HZ27L 1
21	ED-343854	D ZENER H HZ30L 2
22	ED-343410	D ZENER H HZ6L A1
23	ED-307690	D ZENER H HZ7L A1
24	ED-300257	D ZENER H 05Z6.8 X
25	ED-346060	D ZENER H 05Z7.5 X, Y
26	EE-337976	ANT LOOP LA-200A
27	EF-325683	⚠ FUSE GGS A 125V 5A (C,A) F3
28	EF-668474	⚠ FUSE SEMKO T 250V 0.40A (S,E,B) F6,7
29	EF-602550	⚠ FUSE SEMKO T 250V 1.25A (S,E,B) F1
30	EF-601301	⚠ FUSE SEMKO T 250V 2A (S,E,B) F4,5
31	EF-249851	⚠ FUSE SEMKO T 250V 5A (S,E,B) F3
32	EF-311839	⚠ FUSE TSC A 250V 1.6A (U) F1,2
33	EF-306951	⚠ FUSE TSC A 250V 2.5A (U) F4,5
34	EF-326613	⚠ FUSE TSC A 250V 5A (U) F3
35	EF-309390	⚠ FUSE TSC 125V 0.50A (C,A) F6,7
36	EF-306956	⚠ FUSE TSC 125V 2.5A (C,A) F4,5
37	EF-306957	⚠ FUSE TSC 125V 4A (C,A) F1
38	EI-343381	⚠ IC STK-4833ST
39	EI-343374	IC AA-100
40	EI-337600	IC AT600
41	EI-322248	IC LA1231N
42	EI-202218	IC LA1245
43	EI-343349	IC LA3390
44	EI-336761	IC LA6458S
45	EI-336794	IC LB1240
46	EI-343417	IC LB1294
47	EI-338171	IC LC4069UB
48	EI-344764	IC M5218P-21
49	EI-300042	IC M54519P
50	EI-322599	IC TA75458S
51	EI-332259	IC TC4052BP
52	EI-336717	IC TC9125BP
53	EI-343371	IC TC9154P
54	EI-343373	IC TC9156P
55	EI-315381	IC TD6102P
56	EI-327074	OSC X'TAL HC-18/U 9MHZ
57	EM-343376	IND FL BG-135ZK
58	EO-336878	COIL DET 2 78-1049
59	EO-336879	COIL DET 2 78-1050
60	EO-332120	COIL FIX 2 103AK-005A 2.20μH
61	EO-343351	COIL IFT PEGK0008B-01 455.0KC
62	EO-336831	COIL IFT 119A-15266X 10.7MC
63	EO-202216	COIL IFT 7MC-6733C 460KHZ
64	EO-336833	COIL IFT 7MC-7736Z 460KHZ
65	EO-202215	COIL OSC 2 7NR-6721Y 100μH
66	EO-307786	COIL OSC 2 7NR-6722Y 580μH
67	EO-336872	COIL VARI 2 TFEI-ANT-U
68	EO-336871	COIL VARI 2 TFEI-ISC-U
69	EO-336873	COIL VARI 2 TFEI-RF-1
70	EO-336938	COIL VARI 2 TFEI-RF-2
71	EO-337598	COIL VARI 2 25A-1353-01
72	EO-337599	COIL VARI 2 25A-1354-03
73	ER-337327	FILTER CE BFU459C4N 0.459MHZ
74	ER-337328	FILTER CE BFU460C4N 0.46MHZ
75	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
76	ER-343352	FILTER CE SFU459B9 0.459MHZ
77	ER-343353	FILTER CE SFU460B9 0.460MHZ
78	ER-341654	FILTER LC LP 42W-1001
79	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
80	ER-343420	R COMP EXB-P84104K
81	ER-343419	R COMP EXB-P86104K
82	ES-343689	⚠ SW PUSH ESB-90164T 01-1UC (C,A)
83	ES-343688	⚠ SW PUSH ESB-90279S 01-1EBV (U,S,E,B)
84	ES-343364	⚠ SW SELECTA 0240#01 01-4
85	ES-343377	SW PUSH SUL232A 2 THROW
86	ES-343367	SW SLIDE HSW 0700-30 1-01-02N
87	ES-343366	SW SLIDE HSW0700-010 2-02-02N
88	ES-328777	SW TACT EVQ-PYR12K
89	ES-336780	SW TACT KHH10902
90	ET-324134	⚠ TR 2SA984K E,F
91	ET-322598	⚠ TR 2SB632K E,F
92	ET-452531	⚠ TR 2SD313 E,F
93	ET-655356	⚠ TR 2SD571 L,M
94	ET-318239	⚠ TR 2SD863 E,F
95	ET-330588	TR FET 2SK19 O,Y
96	ET-336937	TR FET 2SK223 E,F
97	ET-336867	TR FET 3SK73 Y
98	ET-323529	TR 2SA608K-NP E,F
99	ET-322778	TR 2SA608K-NP E,F,G
100	ET-337038	TR 2SA608KAANP E,F,G T05
101	ET-338410	TR 2SC2878 A,B
102	ET-336869	TR 2SC2999 C,D
103	ET-336935	TR 2SC3000 E,F
104	ET-322775	TR 2SC536K-NP E,F,G
105	ET-337036	TR 2SC536KNPAA E,F,G T05
106	ET-342707	TR 2SC536NP E,F
107	ET-621235	TR 2SC536NP E,F,G
108	ET-618873	TR 2SC930 E,F
109	ET-337744	TR 2SK212 D,E
110	EV-337995	R S-FIX H RVF8P01 3P 103
111	EV-337993	R S-FIX H RVF8P01 3P 203

1. TUNER P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-1	BA-A1003A070A	PC TUNER BLK AA-R22(U)
1-1	BA-A1003A070B	PC TUNER BLK AA-R22(C,A)
1-1	BA-A1003A070C	PC TUNER BLK AA-R22(S)
1-1	BA-A1003A070D	PC TUNER BLK AA-R22L(E,B)
1-IC1	EI-322248	IC LA1231N
1-IC2	EI-343349	IC LA3390
1-IC3	EI-202218	IC LA1245
1-IC4	EI-336717	IC TC9125BP
1-IC5	EI-315381	IC TD6102P
1-TR1	ET-336867	TR FET 3SK73 Y
1-TR2	ET-336869	TR 2SC2999 C,D
1-TR3	ET-337744	TR 2SK212 D,E
1-TR4	ET-618873	TR 2SC930 E,F
1-TR5	ET-336935	TR 2SC3000 E,F
1-TR6,7	ET-621235	TR 2SC536NP E,F,G
1-TR8to10	ET-337036	TR 2SC536KNPAA E,F,G T05
1-TR11	ET-338410	TR 2SC2878 A,B (AA-R22L)
1-TR12to15	ET-322778	TR 2SA608K-NP E,F,G(AA-R22L)
1-TR16	ET-322775	TR 2SC536K-NP E,F,G(AA-R22L)
1-TR17	ET-330588	TR FET 2SK19 O,Y (AA-R22L)
1-TR18to20	ET-322775	TR 2SC536K-NP E,F,G(AA-R22L)
1-TR21	ET-655356	⚠ TR 2SD571 L,M
1-TR22	ET-452531	TR 2SD313 E,F
1-TR23to26	ET-322778	TR 2SA608K-NP E,F,G
1-TR27	ET-336937	TR FET 2SK223 E,F
1-TR28	ET-322775	TR 2SC536K-NP E,F,G(AA-R22L)
1-TR29	ET-322778	TR 2SA608K-NP E,F,G
1-TR30	ET-322775	TR 2SC536K-NP E,F,G
1-D1to4	ED-336832	D VARACTOR SVC211SP
1-D5,6	ED-301911	D SILICON H DS448
1-D7,8	ED-337605	D VARACTOR SVC333 (A) DOUBLE
1-D9	ED-301911	D SILICON H DS448
1-D10	ED-323057	D VARISTER MV12
1-D12	ED-343412	D ZENER H 05Z6.2 X,Y
1-D13	ED-343412	⚠ D ZENER H 05Z6.2 X,Y
1-D14	ED-343413	⚠ D ZENER H 05Z15 X,Y
1-D15to18	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
1-D19to23	ED-301911	D SILICON H DS448
1-D24	ED-346060	D ZENER H 05Z7.5 X,Y
1-D25	ED-301911	D SILICON H DS448 (AA-R22L)
1-TM1	EJ-309941	TERMINAL W/SCREW UB-1059 P 4P
1-VR1	EV-337993	R S-FIX H RVF8P01 3P 203
1-VR2	EV-337995	R S-FIX H RVF8P01 3P 103
1-L1	EO-336872	COIL VARI 2 TFEI-ANT-U
1-L2	EO-336873	COIL VARI 2 TFEI-RF-1
1-L3	EO-336938	COIL VARI 2 TFEI-RF-2
1-L4	EO-336871	COIL VARI 2 TFEI-OSC-U
1-L5	EO-332120	COIL FIX 2 103AK-005A 2.20μH
1-T1	EO-336831	COIL IFT 119AC-15266X 10.7MC
1-T2	EO-336878	COIL DET 2 78-1049
1-T3	EO-336879	COIL DET 2 78-1050
1-T4	EO-337598	COIL VARI 2 25A-1353-01
1-T5	EO-337599	COIL VARI 2 25A-1354-03 (AA-R22L)
1-T6	EO-202215	COIL OSC 2 7NR-6721Y 100μH
1-T7	EO-307786	COIL OSC 2 7NR-6722Y 580μH (AA-R22L)
1-T8	EO-343351	COIL IFT PEGK0008B-01 455.0KC
1-T9	EO-202216	COIL IFT 7MC-6733C 460KHZ
1-FL1	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
1-FL2	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
1-FL3	ER-341654	FILTER LC LP 42W-1001
1-FL4	ER-337327	FILTER CE BFU459C4N 0.459MHZ (U,S,E,B)
1-FL4	ER-337328	FILTER CE BFU460C4N 0.46MHZ (C,A)
1-FL5	ER-343352	FILTER CE SFU459B9 0.459MHZ (U,S,E,B)
1-FL5	ER-343353	FILTER CE SFU460B9 0.460MHZ (C,A)
1-X1	EI-327074	OSC X'TAL HC-18/U 9MHZ
1-VC1to4	EC-337772	C S-FIX H TZ03Z070E 2.0-7
1-VC5	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-VC6	EC-330692	C S-FIX H TZ03R200E 4.2-20 (AA-R22L)
1-VC7	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-R21,22	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R32,33	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R46,47	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R60,61	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R100	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R101	ER-324184	⚠ R CB H S10 FS RDS 1/4W 121J
1-R120	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
1-R123	ER-322421	⚠ R CB H S10 FS RDS 1/4W 820J
1-R147	ER-325114	⚠ R CB H S10 FS RDS 1/4W 330J
1-FR1	ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
1-C56	EC-344486	C PP V F05 PP 391J 50DC (U,S,E,B)
1-C56	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C57	EC-344486	C PP V F05 PP 391J 50DC (U,S,E,B)
1-C57	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C62,63	EC-344484	C PP V F05 PP 392J 50DC
1-C65	EC-344483	C PP V F05 PP 102J 50DC
1-C71	EC-344481	C PP V F05 PP 4700G 50DC
1-C72	EC-344482	C PP V F05 PP 161J 50DC (AA-R22L)

2. CONTROL P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BA-A1003A030A	PC CONTROL BLK AA-R22(U)
2-1	BA-A1003A030B	PC CONTROL BLK AA-R22(C,A)
2-1	BA-A1003A030C	PC CONTROL BLK AA-R22(S)
2-1	BA-A1003A030D	PC CONTROL BLK AA-R22L (E,B)
2-IC1	EI-336761	IC LA6458S
2-IC2,3	EI-343373	IC TC9156P
2-IC4	EI-343371	IC TC9154P
2-IC5	EI-343374	IC AA-100
2-IC6to8	EI-343417	IC LB1294
2-IC9	EI-338171	IC LC4069UB
2-IC10	EI-337600	IC AT600
2-IC11,12	EI-336794	IC LB1240
2-IC13	EI-343417	IC LB1294
2-IC14	EI-300042	IC M54519P
2-IC15	EI-338171	IC LC4069UB
2-TR1,2	ET-342707	TR 2SC536NP E,F
2-D1,2	ED-343410	D ZENER H HZ6L A1
2-D3to10	ED-301911	D SILICON H DS448
2-D11	ED-200469	D SILICON H DS448 FA5 F10 (U,C,A)
2-D12	ED-200469	D SILICON H DS448 FA5 F10 (AA-R22L)
2-D13	ED-200469	D SILICON H DS448 FA5 F10 (C,A)
2-D14	ED-300257	D ZENER H 05Z6.8 X
2-T1,2	EO-336833	COIL IFT 7MC-7736Z 460KHZ
2-SR1	ER-343420	R COMP EXB-P84104K
2-SR2to4	ER-343419	R COMP EXB-P86104K
2-SC1	EC-344480	C COMP 05-0009
2-R12,13	ER-325269	R CB H S10 FS RDS 1/4W 222J
2-C13	EC-344157	C DOUBLE LAYER 473Z 5.5DC
2-SW2to4	ES-336780	SW TACT KHH10902
2-SW6to12	ES-336780	SW TACT KHH10902
2-SW14to20	ES-336780	SW TACT KHH10902
2-SW26,29	ES-336780	SW TACT KHH10902
2-IND1	EM-343376	IND FL BG-135ZK
2-SW1	ES-336780	SW TACT KHH10902
2-SW5,13	ES-336780	SW TACT KHH10902
2-SW21to25	ES-336780	SW TACT KHH10902
2-SW27,28	ES-336780	SW TACT KHH10902
2-SW30,31	ES-336780	SW TACT KHH10902

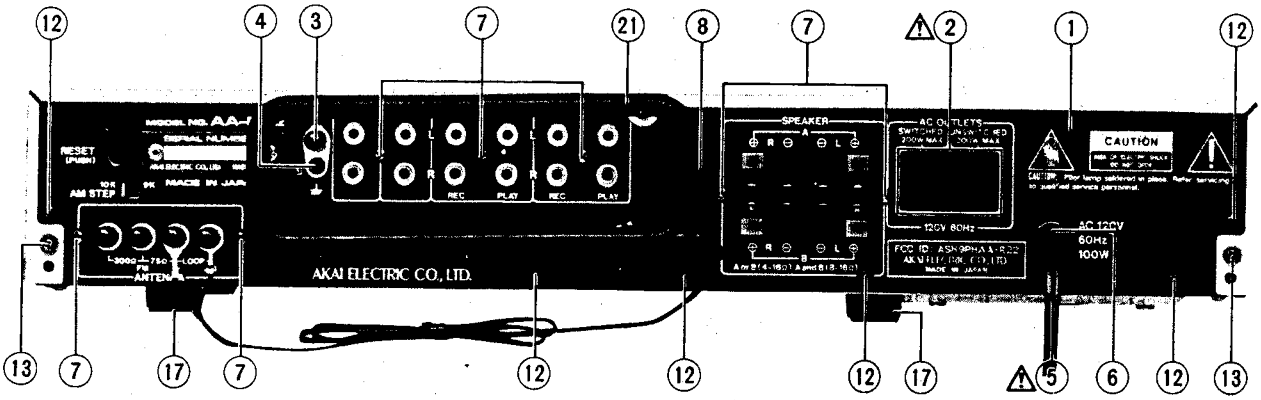
3. MAIN AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1	BA-A1003A060A	PC MAIN AMP BLK AA-R22(U)
3-1	BA-A1003A060B	PC MAIN AMP BLK AA-R22(C,A)
3-1	BA-A1003A060C	PC MAIN AMP BLK AA-R22(S)
3-1	BA-A1003A060D	PC MAIN AMP BLK AA-E22-P(U)
3-1	BA-A1003A060E	PC MAIN AMP BLK AA-R22-P (C,A)
3-1	BA-A1003A060F	PC MAIN AMP BLK AA-R22-P(S)
3-1	BA-A1003A060G	PC MAIN AMP BLK AA-R22L (E,B)
3-1	BA-A1003A060H	PC MAIN AMP BLK AA-R22L-P (E,B)
3-IC1	EI-322599	IC TA75458S
3-TR1	ET-318239	⚠ TR 2SD863 E,F
3-TR2	ET-324134	⚠ TR 2SA984K E,F
3-TR3	ET-322598	⚠ TR 2SB632K E,F
3-TR4	ET-323529	TR 2SA608K-NP E,F
3-D1,2	ED-345149	D ZENER H HZ15L 3
3-D3	ED-337990	D ZENER H HZ27L 1
3-D4	ED-345149	D ZENER H HZ15L 3
3-D5,6	ED-343854	D ZENER H HZ30L 2
3-D7	ED-200213	D SILICON DBA40C-K15 200/2.6A
3-D8,9	ED-330207	D SILICON H DS448BT T26
3-SW1	ES-343377	SW PUSH SUL232A 2 THROW
3-SW2	ES-343688	⚠ SW PUSH ESB-90279S 01-1EBV (U,S,E,B)
3-SW2	ES-343689	⚠ SW PUSH ESB-90164T 01-1UC (C,A)
3-L1	EO-337880	COIL FIX 2 202AK-018 2.20μH
3-TM1	EJ-343378	TERMINAL PUSH SQ-2783#01 P 8P
3-R7	ER-322591	⚠ R CB H S10 FS RDS 1/4W 101J
3-R8	ER-200940	⚠ R CB H S10 FS RDS 1/4W 561J
3-R10	ER-311685	⚠ R CB H S15 FS RDS 1/2W 4R7J
3-R17	ER-321153	⚠ R OMF H S15 FS 1W 102J
3-R18	ER-308028	⚠ R OMF H S15 FS 1W 181J
3-R19	ER-306127	⚠ R CB H S15 FS RDS 1/2W 681J
3-R20	ER-33363	⚠ R CB H S10 FS RDS 1/4W 120J
3-R23	ER-306127	⚠ R CB H S15 FS RDS 1/2W 681J
3-R26	ER-333625	⚠ R CB H S15 FS RDS 1/2W 180J
3-R27	ER-328065	⚠ R CB H SNP FS RDS 1/4W 182J
3-R28	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
3-C14	EC-325320	C EC V F05 NP AWA 2R2M 50DC
3-C16	EC-343976	C EC V T05 NP SM R22M 50DC
3-J2	EJ-343379	PHONE J 3P HLJ0541-030 6.3 (AA-R22/L)
3-J2	EJ-343380	PHONE J 3P HLJ0541-040 6.3 (AA-R22-P/L-P)
3-IC1	EI-343381	⚠ IC STK-4833ST

4. EQ P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
4-1	BA-A1003A050A	PC EQ BLK AA-R22(U)
4-1	BA-A1003A050B	PC EQ BLK AA-R22(C,A)
4-1	BA-A1003A050C	PC EQ BLK AA-R22(S,B,E)
4-IC1	EI-344764	IC M5218P-21
4-IC2to4	EI-332259	IC TC4052BP
4-D1,2	ED-307690	D ZENER H HZ7L A1
4-SW1	ES-343366	SW SLIDE HSW0700-010 2-0 2-02N
4-SW2	ES-343367	SW SLIDE HSW 0700-30 1-0 1-02N
4-SW3	ES-328777	SW TACT EVQ-PYR12K
4-J1to3	EJ-343365	PIN J YMC21-0063 P 4P
4-R10	ER-325269	⚠ R CB H S10 FS RDS1/4W 222J
4-R11	ER-323074	⚠ R CB H S10 FS RDS1/4W 102J
4-C25	EC-344482	C PP V F05 PP 161J 50DC

ASSEMBLY BLOCK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AC OUTLETS
CAUTION
ANTENNA
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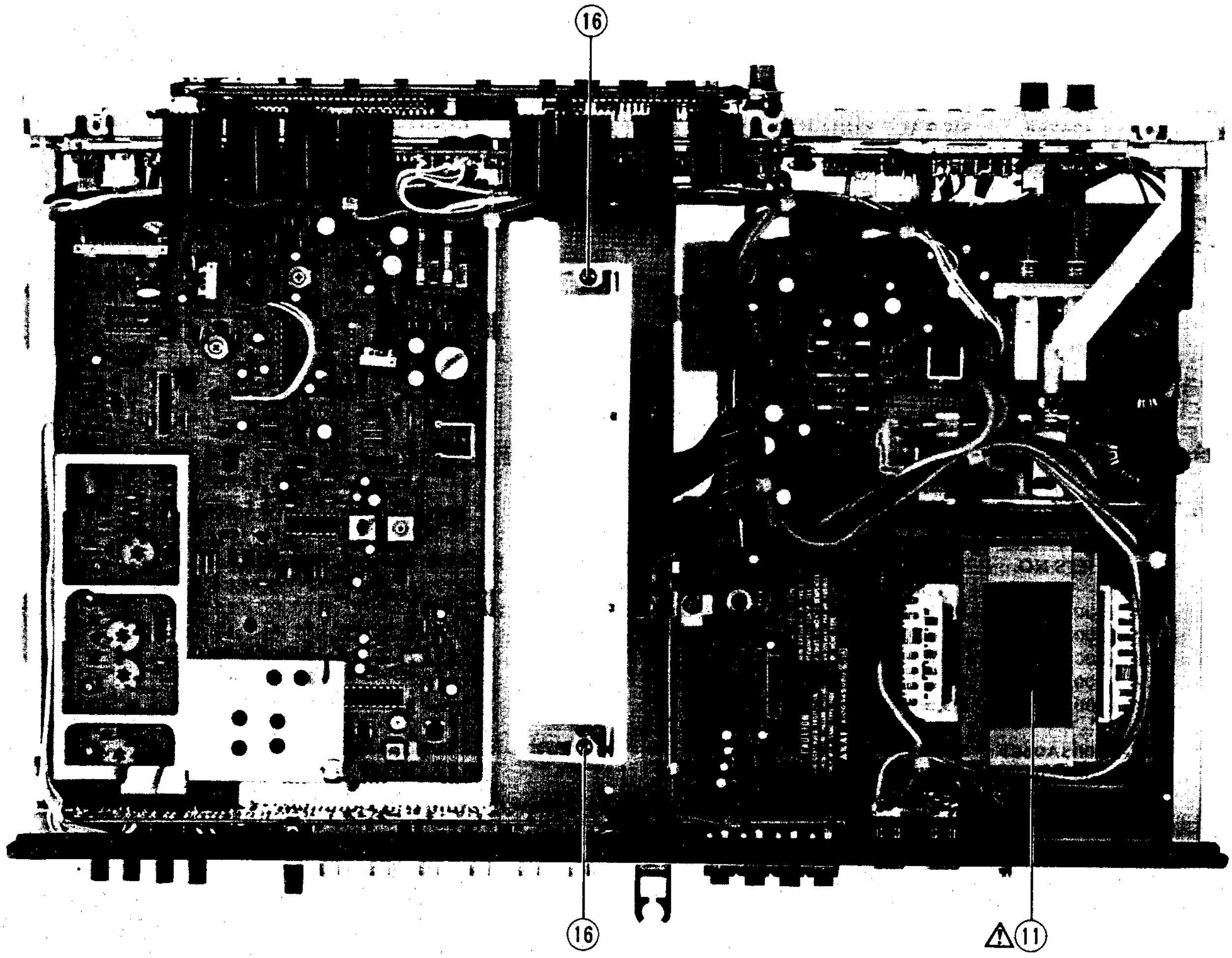
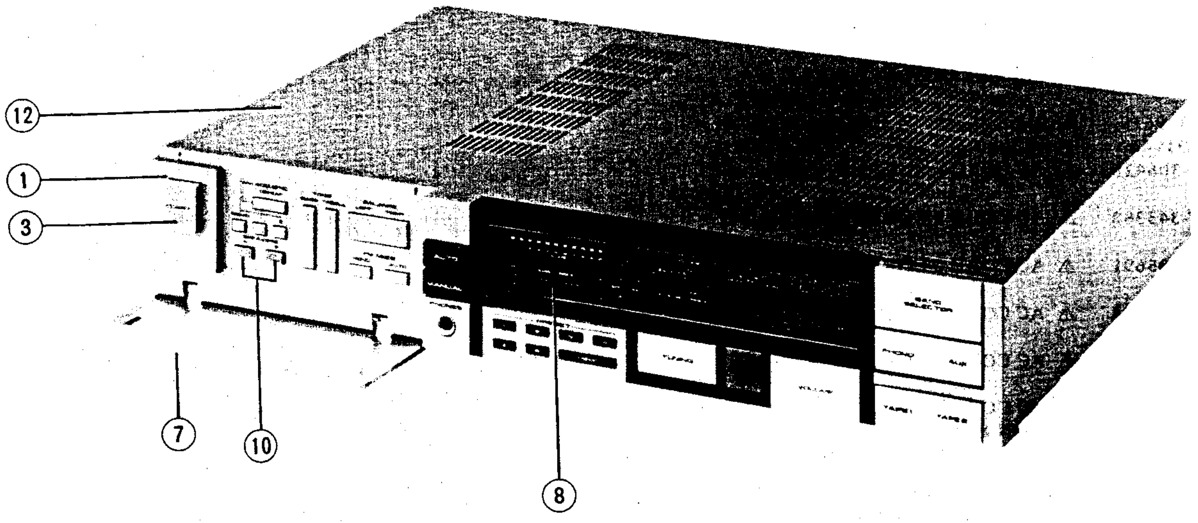
RESET (PUSH)
AM STEP
AC 120V
60Hz
100W



5. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
5-1	SP-342756A	PANEL REAR AA-R22(U)
5-1x	SP-342756B	PANEL REAR AA-R22(C)
5-1x	SP-342756C	PANEL REAR AA-R22(A)
5-1x	SP-342756F	PANEL REAR AA-R22(S)
5-1x	SP-342756D	PANEL REAR AA-R22(E)
5-1x	SP-342756E	PANEL REAR AA-R22(B)
5-2	EJ-343362	⚠ SOCKET OUTLET S2T732T174 JUC (U,C,A)
5-3	EJ-329610	TERMINAL W/SCREW UB-0067 L 1P
5-4	ZS-319460	T2BR30x06STL BZN PROJECTION
5-5	EW-306428	⚠ AC CORD 2 CORES KP-205A, VFF J (U)
5-5x	EW-343363	⚠ AC CORD 2 CORES KP-8, SPT-2 UC (C)
5-5x	EW-305691	⚠ AC CORD 2 CORES KP-8, SPT-1 UC (A)
5-5x	EW-336924	⚠ AC CORD 2 CORES KP-560, LTSA-2F (S)
5-5x	EW-336923	⚠ AC CORD 2 CORES KP-419C, LTCE-2F (E)
5-5x	EW-347025	⚠ AC CORD LTBS-2F 42/0.15x2 (B)
5-6	SZ-631945	STRAIN RELIEF SR-4N-4
5-7	ZS-309315	T2BR30x10STL BNI
5-8	SZ-332739	HOLDER ANTENNA
5-9x	ES-343364	⚠ SW SELECTA 0240#01 01-4(U)
5-10x	ZS-309315	T2BR30x10STL BNI
5-11	BT-343356	⚠ TRANS POWER AA-R22T-70(U)
5-11x	BT-343357	⚠ TRANS POWER AA-R22T-30(C)
5-11x	BT-343358	⚠ TRANS POWER AA-R22T-20(A)
5-11x	BT-343360	⚠ TRANS POWER AA-R22T-50(S,B)
5-11x	BT-343359	⚠ TRANS POWER AA-R22T-40(E)
5-12	ZS-319460	T2BR30x06STL BZN PROJECTION
5-13	ZS-463353	T2BR30x08STL BNI
5-14x	ER-233583	⚠ R SD 1/2W 225K(C,A)
5-15x	ZS-463353	T2BR30x08STL BNI
5-16	ZS-332541	SCREW HEAT SINK
5-17	SA-332850	ROUND FOOT
5-18x	ZS-565942	T2PAN40x08STL CMT
5-19x	ZS-498273	T2BR30x08STL CMT PW080
5-20x	EF-311839	⚠ FUSE TSC A 250V 1.6A (U)(F1,2)
5-20x	EF-326613	⚠ FUSE TSC A 250V 5A (U)(F3)
5-20x	EF-306951	⚠ FUSE TSC A 250V 2.5A (U)(F4,5)
5-20x	EF-325683	⚠ FUSE GGS A 125V 5A (C,A)(F3)
5-20x	EF-306956	⚠ FUSE TSC 125V 2.5A (C,A)(F4,5)
5-20x	EF-306957	⚠ FUSE TSC 125V 4A (C,A)(F1)
5-20x	EF-309390	⚠ FUSE TSC 125V 0.50A (C,A)(F6,7)
5-20x	EF-602550	⚠ FUSE SEMKO T 250V 1.25A (S,E,B)(F1)
5-20x	EF-249851	⚠ FUSE SEMKO T 250V 5A (S,E,B)(F3)
5-20	EF-601301	⚠ FUSE SEMKO T 250V 2A (S,E,B)(F4,5)
5-20x	EF-668474	⚠ FUSE SEMKO T 250V 0.40A (S,E,B)(F6,7)
5-21	EE-337976	ANT LOOP LA-200A

FINAL ASSEMBLY BLOCK



6. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BD-A1003A100A	PANEL FRONT BLK AA-R22
6-1x	BD-A1003A100B	PANEL FRONT BLK AA-R22L
6-1x	BD-A1003A100C	PANEL FRONT BLK AA-R22-P
6-1x	BD-A1003A100D	PANEL FRONT BLK AA-R22L-P
6-2x	BD-B342760A	PANEL FRONT PART AA-R22
6-2x	BD-B342760B	PANEL FRONT PART AA-R22-P
6-3	SK-342820A	KNOB POWER
6-3x	SK-342820B	KNOB POWER-P
6-4x	ZG-322189	SPRING (B)
6-5x	SZ-342765A	HING DOOR PANEL (L)
6-5x	SZ-342765B	HING DOOR PANEL (L)-P
6-6x	SZ-342765C	HING DOOR PANEL (R)
6-6x	SZ-342765D	HING DOOR PANEL (R)-P
6-7	SP-342763A	PANEL DOOR AA-R22
6-7x	SP-342763C	PANEL DOOR AA-R22-L
6-7x	SP-342763B	PANEL DOOR AA-R22-P
6-7x	SP-342763D	PANEL DOOR AA-R22L-P
6-8	SZ-342762	WINDOW DISPLAY
6-9x	ZS-310343	PLX PAN30×06STL CMT
6-10	SK-342819A	KNOB PUSH
6-10x	SK-342819B	KNOB PUSH-P
6-11x	ZS-498273	T2BR30×08STL CMT PW080
6-12	SP-342759A	COVER UPPER
6-12x	SP-342759B	COVER UPPER-P
6-13x	ZS-308846	T2BR30×08STL BZN PROJECTION
6-14x	ZS-311745	T2BR30×08STL BNI PW080

II. AA-R32/L

RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

NO.	PARTS NO.	DESCRIPTION
1	ED-346157	D ZENER H 05Z3.3 Y
2	EF-346139	⚠ FUSE TSC 125V 5A (C,A) F1
3	BT-343386	⚠ TRANS POWER AA-R32T-20 (A)
4	BT-343385	⚠ TRANS POWER AA-R32T-30 (C)
5	BT-343387	⚠ TRANS POWER AA-R32T-40 (E)
6	BT-343388	⚠ TRANS POWER AA-R32T-50 (S,B)
7	BT-343384	⚠ TRANS POWER AA-R32T-70 (U)
8	EC-336882	C DOUBLE LAYER 104 5.5DC
9	EC-330692	C S-FIX H TZ03R200E 4.2-20
10	EC-337772	C S-FIX H TZ03Z070E 2.0-7
11	ED-200749	⚠ D SILICON DBA60-K15 400/6.0A
12	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
13	ED-343413	⚠ D ZENER H 05Z15 X,Y
14	ED-343412	⚠ D ZENER H 05Z6.2 X,Y
15	ED-309341	D GERMA H 1K34A
16	ED-338119	D SILICON H DS446BT T26
17	ED-337153	D SILICON H DS446FA5 F10
18	ED-200469	D SILICON H DS448 FA5 F10
19	ED-330207	D SILICON H DS448BT T26
20	ED-200468	D SILICON V DS448-VB6
21	ED-336832	D VARACTOR SVC211SP
22	ED-337605	D VARACTOR SVC333(A) DOUBLE
23	ED-323057	D VARISTER MV12
24	ED-330218	D ZENER H HZ15L 2
25	ED-330219	D ZENER H HZ20L 2
26	ED-343410	D ZENER H HZ6L A1
27	ED-346116	D ZENER H 05Z13 Y
28	ED-325115	D ZENER H 05Z15 L
29	ED-344177	D ZENER H 05Z36 Y
30	ED-323354	D ZENER H 05Z6.2
31	EE-337976	ANT LOOP LA-200A
32	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (S,E,B) F6
33	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (S,E,B) F7
34	EF-601301	⚠ FUSE SEMKO T 250V 2A (S,E,B) F1
35	EF-326639	⚠ FUSE TSC A 250V 3.15A (U) F1
36	EF-326639	⚠ FUSE TSC A 250V 3.15A (U) F2
37	EF-309390	⚠ FUSE TSC 125V 0.50A (C,A) F6
38	EF-309390	⚠ FUSE TSC 125V 0.50A (C,A) F7
39	EI-343390	⚠ IC STK-1050
40	EI-343374	IC AA-100
41	EI-337600	IC AT600
42	EI-315799	IC HA12019
43	EI-322248	IC LA1231N
44	EI-202218	IC LA1245
45	EI-343349	IC LA3390
46	EI-344490	IC LA6458D
47	EI-336761	IC LA6458S
48	EI-337013	IC LB1290
49	EI-338171	IC LC4069UB
50	EI-344764	IC M5218P-21
51	EI-300042	IC M54519P
52	EI-323563	IC STK-3042
53	EI-332259	IC TC4052BP
54	EI-336717	IC TC9125BP
55	EI-343371	IC TC9154P
56	EI-343373	IC TC9156P
57	EI-315381	IC TD6102P
58	EI-327074	OSC X'TAL HC-18/U 9MHZ
59	EM-343397	IND FL BG-136Z
60	EO-336878	COIL DET 2 78-1049
61	EO-336879	COIL DET 2 78-1050
62	EO-336831	COIL IFT 119AC-15266X 10.7MC
63	EO-344174	COIL IFT 26-5085-02 459.0KHZ
64	EO-202216	COIL IFT 7MC-6733C 460KHZ
65	EO-336833	COIL IFT 7MC-7736Z 460KHZ
66	EO-202215	COIL OSC 2 7NR-6721Y 100µH
67	EO-307786	COIL OSC 2 7NR-6722Y 580µH
68	EO-336872	COIL VARI 2 TFEI-ANT-U
69	EO-336871	COIL VARI 2 TFEI-OSC-U
70	EO-336873	COIL VARI 2 TFEI-RF-1
71	EO-336938	COIL VARI 2 TFEI-RF-2
72	EO-337598	COIL VARI 2 25A-1353-01
73	EO-337599	COIL VARI 2 25A-1354-03
74	EP-337159	RELAY SIG G4Z-2282P 2NO 24V
75	ER-337327	FILTER CE BFU459C4N 0.459MHZ
76	ER-337328	FILTER CE BFU460C4N 0.46MHZ
77	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
78	ER-343354	FILTER CE SFZ459B3L 0.461MHZ
79	ER-343355	FILTER CE SFZ460B3L 0.462MHZ
80	ER-341654	FILTER LC LP 42W-1001
81	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
82	ER-200941	R CB H S10 FS RDS 1/4W 271J
83	ER-325114	R CB H S10 FS RDS 1/4W 330J
84	ER-343409	R COMP EXB-P87103M
85	ER-318248	R FUSE ERD2FC S10 1/4W 47R0G
86	ES-343689	⚠ SW PUSH ESB-90164T 01-1UC (C,A)
87	ES-343688	⚠ SW PUSH ESB-90279S 01-1EBV (U,S,E,B)
88	ES-343364	⚠ SW SELECTA 0240#01 01-4 (U)
89	ES-343391	SW PUSH ESB-62902 2 THROW
90	ES-343392	SW PUSH SUL222A 2 THROW
91	ES-343398	SW SLIDE HSW0690-400 2-02-02N
92	ES-343399	SW SLIDE HSW0690-410 1-01-02N
93	ES-343400	SW TACT EVQ-QHR12K
94	ES-336780	SW TACT KHH10902
95	ET-301165	⚠ TR 2SB631K E,F
96	ET-452531	⚠ TR 2SD313 E,F
97	ET-655356	⚠ TR 2SD571 L,M
98	ET-300931	⚠ TR 2SD600K E,F
99	ET-330588	TR FET 2SK19 O,Y
100	ET-336937	TR FET 2SK223 E,F
101	ET-336867	TR FET 3SK73 Y
102	ET-322778	TR 2SA608K-NP E,F,G
103	ET-337038	TR 2SA608KAANP E,F,G T05
104	ET-305463	TR 2SA970 GR,BL
105	ET-307195	TR 2SC2240 GR,BL
106	ET-338410	TR 2SC2878 A,B
107	ET-336869	TR 2SC2999 C,D
108	ET-336935	TR 2SC3000 E,F
109	ET-322775	TR 2SC536K-NP E,F,G
110	ET-337036	TR 2SC536KNPAA E,F,G T05
111	ET-618873	TR 2SC930 E,F
112	ET-452531	TR 2SD313 E,F
113	ET-328440	TR 2SD863-V8 E,F
114	ET-337744	TR 2SK212 D,E
115	EV-315540	R S-FIX H D8 3P 502
116	EV-337995	R S-FIX H RVF8P01 3P 103
117	EV-337993	R S-FIX H RVF8P01 3P 203

1. TUNER EQ P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-1	BA-A1004A050A	PC TUNER EQ BLK 11-R32(U)
1-1	BA-A1004A050B	PC TUNER EQ BLK AA-R32 (C,A)
1-1	BA-A1004A050C	PC TUNER EQ BLK AA-R32(S)
1-1	BA-A1004A050D	PC TUNER EQ BLK AA-R32L (E,B)
1-IC1	EI-322248	IC LA1231N
1-IC2	EI-343349	IC LA3390
1-IC3	EI-202218	IC LA1245
1-IC4	EI-336717	IC TC9125BP
1-IC5	EI-315381	IC TD6102P
1-IC11	EI-344764	IC M5218P-21
1-TR1	ET-336867	TR FET 3SK73 Y
1-TR2	ET-336869	TR 2SC2999 C,D
1-TR3	ET-337744	TR 2SK212 D,E
1-TR4	ET-618873	TR 2SC930 E,F
1-TR5	ET-336935	TR 2SC3000 E,F
1-TR6to8	ET-322775	TR 2SC536K-NP E,F,G
1-TR9	ET-322778	TR 2SA608K-NP E,F,G
1-TR10	ET-322775	TR 2SC536K-NP E,F,G
1-TR11	ET-338410	TR 2SC2878 A,B (AA-R32L)
1-TR12to15	ET-322778	TR 2SA608K-NP E,F,G (AA-R32L)
1-TR16	ET-322775	TR 2SC536K-NP E,F,G (AA-R32L)
1-TR17	ET-330588	TR FET 2SK19 O,Y (AA-R32L)
1-TR18	ET-322775	TR 2SC536K-NP E,F,G
1-TR19,20	ET-322775	TR 2SC536K-NP E,F,G (AA-R32L)
1-TR21	ET-655356	⚠ TR 2SD571 L,M
1-TR22	ET-452531	⚠ TR 2SD313 E,F
1-TR23	ET-322778	TR 2SA608K-NP E,F,G
1-TR24to26	ET-322775	TR 2SC536K-NP E,F,G
1-TR27	ET-336937	TR FET 2SK223 E,F
1-TR28	ET-322775	TR 2SC536K-NP E,F,G (AA-R32L)
1-D1to4	ED-336832	D VARACTOR SVC211SP
1-D5,6	ED-301911	D SILICON H DS448
1-D7,8	ED-337605	D VARACTOR SVC333(A) DOUBLE
1-D9	ED-301911	D SILICON H DS448
1-D10	ED-323057	D VARISTER MV12
1-D12	ED-343412	D ZENER H 05Z6.2 X,Y
1-D13	ED-343412	⚠ D ZENER H 05Z6.2 X,Y
1-D14	ED-343413	⚠ D ZENER H 05Z15 X,Y
1-D15to18	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
1-D19	ED-301911	D SILICON H DS448
1-D22,23	ED-301911	D SILICON H DS448
1-D25	ED-301911	D SILICON H DS448 (AA-R32L)
1-J1	EJ-336905	PIN J AJC-035-ACB P 4P
1-VR1	EV-337993	R S-FIX H RVF8P01 3P 203
1-VR2	EV-337995	R S-FIX H RVF8P01 3P 103
1-L1	EO-336872	COIL VARI 2 TFEI-ANT-U
1-L2	EO-336873	COIL VARI 2 TFEI-RF-1
1-L3	EO-336938	COIL VARI 2 TFEI-RF-2
1-L4	EO-336871	COIL VARI 2 TFEI-OSC-U
1-L5	EO-332120	COIL FIX 2 103AK-005A 2.20μH
1-T1	EO-336831	COIL IFT 119AC-15266X 10.7MC
1-T2	EO-336878	COIL DET 2 78-1049
1-T3	EO-336879	COIL DET 2 78-1050
1-T4	EO-337598	COIL VARI 2 25A-1353-01
1-T5	EO-337599	COIL VARI 2 25A-1354-03 (AA-R32L)
1-T6	EO-202215	COIL OSC 2 7NR-6721Y 100μH
1-T7	EO-307786	COIL OSC 2 7NR-6722Y 580μH (AA-R32L)
1-T8	EO-344174	COIL IFT 26-5085-02 459.0KHZ
1-T9	EO-202216	COIL IFT 7MC-6733C 460KHZ
1-FL	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
1-FL2	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
1-FL3	ER-341654	FILTER LC LP 42W-1001
1-FL4	ER-337327	FILTER CE BFU459C4N 0.459MHZ (U,S,E,B)
1-FL4	ER-337328	FILTER CE BFU460C4N 0.460MHZ (C,A)
1-FL5	ER-343354	FILTER CE SFZ459B3L 0.461MHZ (U,S,E,B)
1-FL5	ER-343355	FILTER CE SFZ460B3L 0.462MHZ (C,A)
1-X1	EI-327074	OSC X'TAL HC-18/U 9MHZ
1-VC1to4	EC-337772	C S-FIX H TZ03Z070E 2.0-7
1-VC5	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-VC6	EC-330692	C S-FIX H TZ03R200E 4.2-20 (AA-R32L)
1-VC7	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-R21,22	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R32	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R46,47	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R60,61	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R100	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R101	ER-324184	⚠ R CB H S10 FS RDS 1/4W 121J
1-R120	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
1-R123	ER-322421	⚠ R CB H S10 FS RDS 1/4W 820J
1-R147	ER-325114	⚠ R CB H S10 FS RDS 1/4W 330J
1-R215,216	ER-200941	⚠ R CB H S10 FS RDS 1/4W 271J
1-FR1	ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
1-C56	EC-344486	C PP V F05 PP 391J 50DC (U,S,E,B)
1-C56	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C57	EC-344486	C PP V F05 PP 391J 50DC (U,S,E,B)
1-C57	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C62,63	EC-344484	C PP V F05 PP 392J 50DC
1-C65	EC-344483	C PP V F05 PP 102J 50DC
1-C71	EC-344481	C PP V F05 PP 4700G 50DC
1-C72	EC-344482	C PP V F05 PP 161J 50DC

2. MAIN AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BA-A1004A020A	PC MAIN AMP BLK AA-R32 (U)
2-1	BA-A1004A020B	PC MAIN AMP BLK AA-R32 (C,A)
2-1	BA-A1004A020C	PC MAIN AMP BLK AA-R32 (S,E,B)
2-1	BA-A1004A020D	PC MAIN AMP BLK AA-R32-P (U)
2-1	BA-A1004A020E	PC MAIN AMP BLK AA-R32-P (C,A)
2-1	BA-A1004A020F	PC MAIN AMP BLK AA-R32-P (S,E,B)
2-IC1	EI-323563	IC STK-3042
2-IC2	EI-343390	⚠ IC STK-1050
2-IC3	EI-336761	IC LA6458S
2-TR1	ET-305463	TR 2SA970 GR,BL
2-TR2to6	ET-307195	TR 2SC2240 GR,BL
2-TR8	ET-328440	TR 2SD863-V8 E,F
2-TR9	ET-300931	⚠ TR 2SD600K E,F
2-TR10	ET-452531	TR 2SD313 E,F
2-TR11	ET-301165	⚠ TR 2SB631K E,F
2-TR12	ET-307195	TR 2SC2240 GR,BL
2-D1to5	ED-301911	D SILICON H DS448
2-D6	ED-325115	D ZENER H 05Z15 L
2-D7to11	ED-301911	D SILICON H DS448
2-D12	ED-309341	D GERMA H 1K34A
2-D13	ED-344177	D ZENER H 05Z36 Y
2-D14	ED-330218	D ZENER H HZ15L 2
2-D15	ED-330219	D ZENER H HZ20L 2
2-D16,17	ED-330218	D ZENER H HZ15L 2
2-D18	ED-301911	D SILICON H DS448
2-D19	ED-346116	D ZENER H 05Z13 Y
2-D20	ED-200749	⚠ D SILICON DBA60-K15 400/6.0A
2-D21	ED-301911	D SILICON H DS448
2-D22	ED-337153	D SILICON H DS446FA5 F10
2-D23	ED-346157	D ZENER H 05Z3.3 Y
2-SW1	ES-343391	SW PUSH ESB-62902 2 THROW
2-SW2	ES-343392	SW PUSH SUL222A 2 THROW
2-VR1	EV-315540	R S-FIX H D8 3P 502
2-L1	EO-337880	COIL FIX 2 202AK-018 2.20μH
2-RL1	EP-337159	RELAY SIG G4Z-2282P 2NO 24V
2-R9,11	ER-325269	⚠ R CB H S10 FS RDS 1/4W 222J
2-R12,15	ER-325269	⚠ R CB H S10 FS RDS 1/4W 222J
2-R21	ER-337773	⚠ R OMF H S15 FS 1W 222J
2-R25,26	ER-308875	⚠ R CB H S15 FS RDS 1/2W 100J
2-R33	ER-333067	⚠ R OMF H S20 FS 2W 821J
2-R34	ER-333044	⚠ R OMF H S20 FS 2W 152J
2-R35	ER-308875	⚠ R CB H S15 FS RDS 1/2W 100J
2-R39,40	ER-325269	⚠ R CB H S10 FS RDS 1/4W 222J
2-R41	ER-323075	⚠ R CB H SNP FS RDS 1/4W 472J
2-R42	ER-323074	⚠ R CB H S10 FS RDS 1/4W 102J
2-R43	ER-333598	⚠ R CB H S15 FS RDS 1/2W 102J
2-R47	ER-306127	⚠ R CB H S15 FS RDS 1/2W 681J
2-R51	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
2-FR1,2	ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
2-FR3,4	ER-337756	⚠ R FUSE ERD2FC S10 1/4W 4700G
2-FR5,6	ER-328519	⚠ R FUSE ERD2FC S10 1/4W 68R0G
2-C9	EC-343855	C EC V F05 NP SM R22M 50.0DC
2-C10	EC-338380	C EC V T05 NP SM 2R2M 50.0DC
2-C16	EC-337151	C EC V CUT NP 04D 221M 6.3DC
2-C22,23	EC-320548	C CE V F 103Z 250AC
2-C28,29	EC-343393	C EC V CUT SM 103M 50.0DC
2-J1	EJ-343395	PHONE J HLJ0608-023 6.3 (AA-R32/L)
2-J1	EJ-343396	PHONE J 3P HLJ0608-024 6.3 (AA-R32-P/L-P)
2-R49,50	ER-313699	⚠ R OMF H FS 2W 221J
2-IC1,2	EI-315799	IC HA12019

3. CONTROL P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1	BA-A1004A060A	PC CONTROL BLK AA-R32(U)
3-1	BA-A1004A060B	PC CONTROL BLK AA-R32(C,A)
3-1	BA-A1004A060C	PC CONTROL BLK AA-R32(S)
3-1	BA-A1004A060D	PC CONTROL BLK AA-R32L (E,B)
3-IC1	EI-343374	IC AA-100
3-IC2	EI-337600	IC AT600
3-IC3to6	EI-337013	IC LB1290
3-IC7,8	EI-338171	IC LC4069UB
3-IC9,10	EI-300042	IC M54519P
3-IC11to13	EI-343373	IC TC9156P
3-IC14	EI-344490	IC LA6458D
3-IC15to17	EI-332259	IC TC4052BP
3-TR1,2	ET-322775	TR 2SC536K-NP E,F,G
3-D1,2	ED-343410	D ZENER H HZ6L A1
3-D11to22	ED-337153	D SILICON H DS446FA5 F10
3-D23,24	ED-301911	D SILICON H DS448 (AA-R32L)
3-D25	ED-337153	D SILICON H DS446FA5 F10
3-D26	ED-323354	D ZENER H 05Z6.2 X
3-D27	ED-301911	D SILICON H DS448 (AA-R32L)
3-D28	ED-301911	D SILICON H DS448 (U,C,A)
3-D29	ED-301911	D SILICON H DS448 (C,A)
3-D30	ED-301911	D SILICON H DS448
3-J15,16	EJ-343401	PIN J AJC-035-ADB P 4P
3-SW1	ES-343398	SW SLIDE HSW0690-400 2-02-02N (U)
3-SW2	ES-343399	SW SLIDE HSW0690-410 1-01-02N (U,C,A)
3-SW3	ES-343400	SW TACT EVQ-QHR12K
3-T1,2	EO-336833	COIL IFT 7MC-7736Z 460 KHZ
3-SR1	ER-343409	R COMP EXB-P87103M
3-SC2	EC-344480	C COMP 05-0009
3-C50	EC-336882	C DOUBLE LAYER 104 5.5DC
3-C60	EC-344482	C PP V F05 PP 161J 50DC (U)

4. KEY BOARD (1) P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
4-SW1to11	ES-336780	SW TACT KHH10902
4-SW13to16	ES-336780	SW TACT KHH10902
4-IND1	EM-343397	IND FL BG-136Z

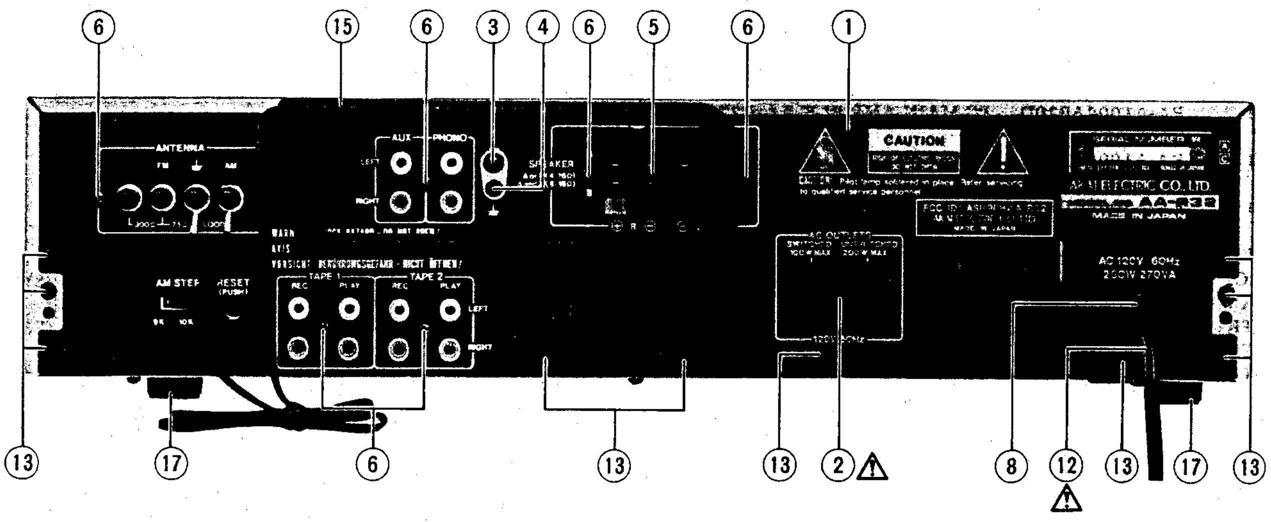
5. KEY BAORD (2) P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
5-SW1to8	ES-336780	SW TACT KHH10902
5-SW11to20	ES-336780	SW TACT KHH10902

6. POWER P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-SW1	ES-343688	⚠ SW PUSH ESB-90271S 01-1EBV (U,S,E,B)
6-SW1	ES-343689	⚠ SW PUSH ESB-90161T 01-1UC (C,A)
6-C1	EC-320548	⚠ C CE V F 103Z 250AC (U)
6-C1	EC-314688	⚠ C CE V FZ 103P 125AC (C,A)
6-C1	EC-338496	⚠ C CE V FZ 472P 400AC (S,E,B)

ASSEMBLY BLOCK


⑥
⑮
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①
ANTENNA
FM
AM
AUX
PHONO
LEFT
RIGHT
SPEAKER
CAUTION
AKAI ELECTRIC CO., LTD.
AA-R32
MADE IN JAPAN
AC OUTLETS
AM STEP
RESET (PUSH)
TAPE 1
TAPE 2
REC
PLAY
REC
PLAY
LEFT
RIGHT
AC 120V 60Hz
⑬
⑰
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② ⚠
⑧
⑫ ⚠
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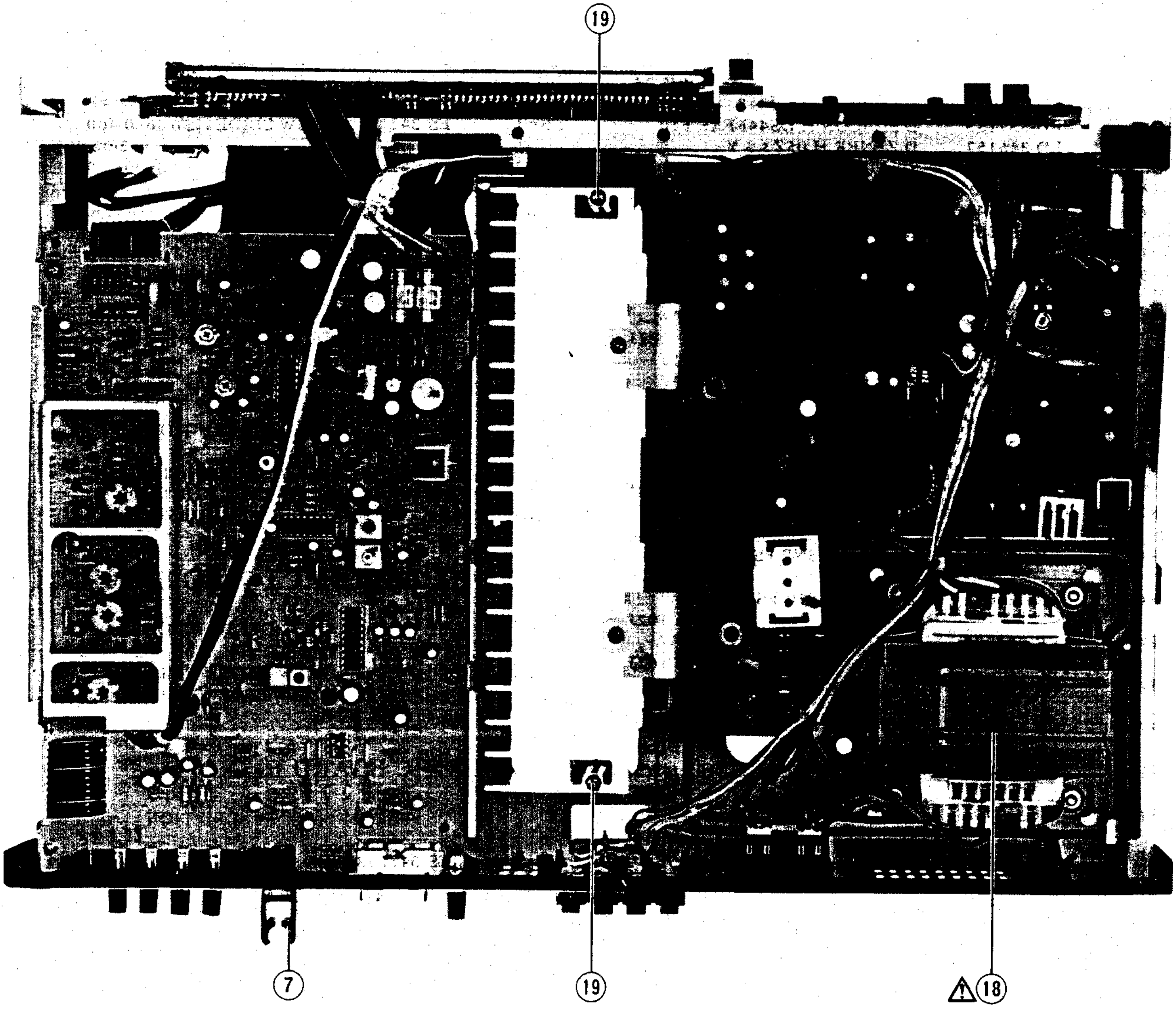
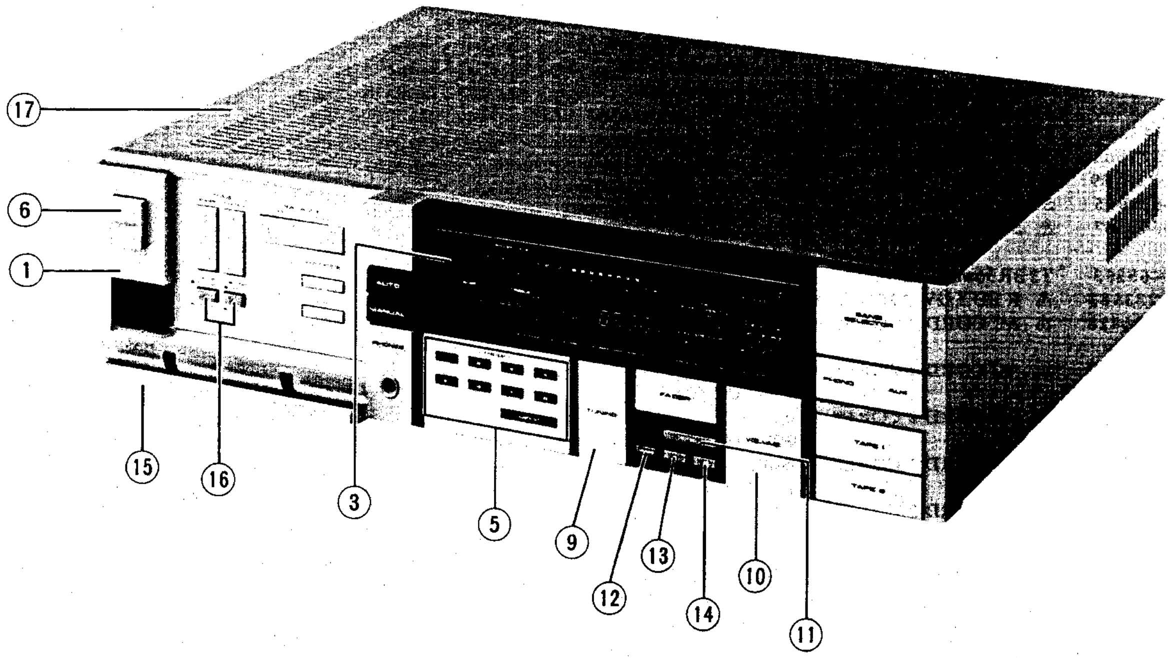
⑬



7. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
7-1	SP-342791A	PANEL REAR AA-R32 (U)
7-1x	SP-342791B	PANEL REAR AA-R32 (C,A)
7-1x	SP-342791D	PANEL REAR AA-R32 (S)
7-1x	SP-342791E	PANEL REAR AA-R32L (E)
7-1x	SP-342791F	PANEL REAR AA-R32L (B)
7-2	EJ-343362	⚠ SOCKET OUTLET S2T732T174 JUC (U,C,A)
7-3	EJ-329610	TERMINAL W/SCREW UB-0067 L 1P
7-4	ZS-319460	T2BR30x06STL BZN PROJECTION
7-5	EJ-343389	TERMINAL PUSH S-Q2780#01 S 8P
7-6	ZS-522865	T2BR30x12STL BNI
7-7	ER-322739	R CB H T26 RDS 1/4W 204J
7-8	SZ-631945	STRAIN RELIEF SR-4N-4
7-9x	ES-343367	⚠ SW SLIDE HSW 0700-30 1-01-02N (U)
7-10x	ZS-463353	T2BR30x08STL BNI
7-11x	ER-233583	⚠ R SD 1/2W 225K (C,A)
7-12	EW-306428	⚠ AC CORD 2 CORES KP-205A, VFF J (U)
7-12x	EW-343363	⚠ AC CORD 2 CORES KP-8, SPT-2 UC (C)
7-12x	EW-328245	⚠ AC CORD 2 CORES KP-8, SPT-1 105°C UC (A)
7-12x	EW-336924	⚠ AC CORD 2 CORES KP-560, LTSA-2F (S)
7-12x	EW-313882	⚠ AC CORD 2 CORES KP-419C, LTCE-2F (E)
7-12x	EW-347025	⚠ AC CORD LTBS-2F 42/0.15x2 (B)
7-13	ZS-319460	T2BR30x06STL BZN PROJECTION
7-14x	ZS-530673	ROLLER SCREW (A)
7-15	EE-337976	ANT LOOP LA-200A
7-16x	EF-326639	⚠ FUSE TSC A 250V 3.15A (U)(F1)
7-16x	EF-326639	⚠ FUSE TSC A 250V 3.15A (U)(F2)
7-16x	EF-309390	⚠ FUSE TSC 125V 0.50A (C,A)(F6,7)
7-16x	EF-346139	⚠ FUSE TSC 125V 5A (C,A)(F1)
7-16x	EF-300599	⚠ FUSE FST3100 T 250V 0.40A (S,E,B)(F6,7)
7-17	SA-332850	ROUND FOOT
7-18	BT-343384	⚠ TRANS POWER AA-R32T-70 (U)
7-18x	BT-343385	⚠ TRANS POWER AA-R32T-30 (C)
7-18x	BT-343386	⚠ TRANS POWER AA-R32T-20 (A)
7-18x	BT-343388	⚠ TRANS POWER AA-R32T-50 (S,B)
7-18x	BT-343387	TRANS POWER AA-R32T-40 (E)
7-19	ZS-342792B	SCREW HEAT-SINK (B)

FINAL ASSEMBLY BLOCK



8. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
8-1	BD-A1004A080A	PANEL FRONT BLK AA-R32
8-1x	BD-A1004A080B	PANEL FRONT BLK AA-R32-P
8-2x	BD-B342799C	PANEL FRONT (B)
8-2x	BD-B342799D	PANEL FRONT (B)-P PART
8-3	SZ-342812	WINDOW FRONT
8-4x	ZS-310343	PLX PAN30x06STL CMT
8-5	SK-B342817	KNOB OPERATION PART
8-5x	SK-B342817B	KNOB OPERATION-P PART
8-6	SK-342820A	KNOB POWER
8-6x	SK-342820B	KNOB POWER-P
8-7x	ZG-322189	SPRING (B)
8-8x	ZS-325503	PLX PAN30x12STL CMT
8-9	SK-B342806A	KNOB CAP (C-1) PART
8-9x	SK-B342806B	KNOB CAP (C-1)-P PART
8-10	SK-B342809A	KNOB CAP (E) PART
8-10x	SK-B342809B	KNOB CAP (E)-P PART
8-11	SK-342815	KNOB DEFEAT
8-12	SK-342816A	KNOB TONE (A)
8-13	SK-342816B	KNOB TONE (B)
8-14	SK-342816C	KNOB TONE (C)
8-15	SP-342822A	PANEL DOOR AA-R32
8-15x	SP-342822B	PANEL DOOR AA-R32-P
8-15x	SP-342822C	PANEL DOOR AA-R32L
8-15x	SP-342822D	PANEL DOOR AA-R32L-P
8-16	SK-342819A	KNBO PUSH
8-16x	SK-342819B	KNOB PUSH-P
8-17	SP-342823A	COVER UPPER
8-17x	SP-342823B	COVER UPPER-P
8-18	ZS-308846	T2BR30x08STL BZN PROJECTION
8-19x	SZ-342794	GUIDE (L)
8-20x	SZ-342795	GUIDE (R)
8-21x	SZ-342796	SLIDER

III. AA-R42

RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

NO.	PARTS NO.	DESCRIPTION
1	ED-346133	D ZENER 05Z3.9 Y
2	BT-343404	TRANS POWER AA-R42T-20
3	BT-343403	TRANS POWER AA-R42T-30
4	BT-343405	TRANS POWER AA-R42T-50
5	BT-343402	TRANS POWER AA-R42T-70
6	EC-320548	⚠ C CE V F 103Z 250AC (U)
7	EC-314688	⚠ C CE V FZ 103P 125AC (C,A)
8	EC-338496	⚠ C CE V FZ 472P 400AC (S)
9	EC-344480	C COMP 05-0009
10	EC-336882	C DOUBLE LAYER 104 5.5DC
11	EC-330692	C S-FIX H TZ03R200E 4.2-20
12	EC-337772	C S-FIX H TZ03Z070E 2.0-7
13	ED-330320	⚠ D SILICON DBA10C 200/1.0A
14	ED-200749	⚠ D SILICON DBA60-K15 400/6.0A
15	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
16	ED-330218	⚠ D ZENER H HZ15L 2
17	ED-343421	⚠ D ZENER H HZ16L 2
18	ED-343413	⚠ D ZENER H 05Z15 X,Y
19	ED-343412	⚠ D ZENER H 05Z6.2 X,Y
20	ED-309341	D GERMA H 1K34A
21	ED-338119	D SILICON H DS446BT T26
22	ED-337153	D SILICON H DS446FA5 F10
23	ED-200469	D SILICON H DS448 FA5 F10
24	ED-330207	D SILICON H DS448BT T26
25	ED-200468	D SILICON V DS448-VB6
26	ED-336832	D VARACTOR SVC211SP
27	ED-337605	D VARACTOR SVC333 (A) DOUBLE
28	ED-323057	D VARISTER MV12
29	ED-343410	D ZENER H HZ6L A1
30	ED-324195	D ZENER H 05Z13 U
31	ED-343422	D ZENER H 05Z18 Y
32	ED-343415	D ZENER H 05Z36 X
33	ED-323354	D ZENER H 05Z6.2
34	EE-337976	ANT LOOP LA-200A
35	EF-300601	⚠ FUSE FST3100 T 250V 0.50A (S) F6,7
36	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (S) F4
37	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (S) F3
38	EF-691007	⚠ FUSE SEMKO T 250V 3.15A (S) F1
39	EF-326639	⚠ FUSE TSC A 250V 3.15A (U) F1
40	EF-309390	⚠ FUSE TSC 125V 0.50A (C) F6,7
41	EF-305703	⚠ FUSE TSC 125V 0.63A (C) F4
42	EF-305703	⚠ FUSE TSC 125V 0.63A (C) F3
43	EF-346115	⚠ FUSE TSC 125V 6.30A (C) F1
44	EI-343406	⚠ IC STK-1070
45	EI-343374	IC AA-100
46	EI-337600	IC AT600
47	EI-315799	IC HA12019
48	EI-322248	IC LA1231N
49	EI-202218	IC LA1245
50	EI-343349	IC LA3390
51	EI-344490	IC LA6458D
52	EI-336761	IC LA6458S
53	EI-337013	IC LB1290
54	EI-338171	IC LC4069UB
55	EI-300042	IC M54519P
56	EI-213390	IC NJM4558D
57	EI-326595	IC STK3062
58	EI-332259	IC TC4052BP
59	EI-336717	IC TC9125BP
60	EI-343371	IC TC9154P
61	EI-343373	IC TC9156P
62	EI-315381	IC TD6102P
63	EI-327074	OSC X'TAL HC-18/U 9MHZ
64	EM-343397	IND FL BG-136Z
65	EO-336878	COIL DET 2 78-1049
66	EO-336879	COIL DET 2 78-1050
67	EO-336831	COIL IFT 119AC-15266X 10.7MC
68	EO-344174	COIL IFT 26-5085-02 459.0KHZ
69	EO-202216	COIL IFT 7MC6733C 460KHZ
70	EO-336833	COIL IFT 7MC-7736Z 460KHZ
71	EO-202215	COIL OSC 2 7NR-6721Y 100μH
72	EO-336872	COIL VARI 2 TFEI-ANT-U
73	EO-336871	COIL VARI 2 TFEI-OSC-U
74	EO-336873	COIL VARI 2 TFEI-RF-1
75	EO-336938	COIL VARI 2 TFEI-RF-2
76	EO-337598	COIL VARI 2 25A-1353-01
77	EP-337159	RELAY SIG G4Z-2282P 2NO 24V
78	EP-337416	RELAY SIGNAL G2V-282P-NL 2TR 12V
79	ER-337327	FILTER CE BFU459C4N 0.459MHZ
80	ER-337328	FILTER CE BFU460C4N 0.46MHZ
81	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
82	ER-343354	FILTER CE SFZ459B3L 0.461MHZ
83	ER-343355	FILTER CE SFZ460B3L 0.462MHZ
84	ER-341654	FILTER LC LP 42W-1001
85	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
86	ES-343689	⚠ SW PUSH ESB-90164T 01-1UC (C,A)
87	ES-343688	⚠ SW PUSH ESB-90279S 01-1EBV (U,S)
88	ES-343407	SW PUSH ESB-62901 3 THROW
89	ES-342910	SW PUSH SUL222S 2 THROW
90	ES-343364	SW SELECTA 0240#01 01-4
91	ES-343398	SW SLIDE HSW0690-400 2-02-02N
92	ES-343399	SW SLIDE HSW0690-410 1-01-02N
93	ES-343400	SW TACT EVQ-QHR12K
94	ES-336780	SW TACT KHH10902
95	ET-301165	⚠ TR 2SB631K E,F
96	ET-452531	⚠ TR 2SD313 E,F
97	ET-655356	⚠ TR 2SD571 L,M
98	ET-300931	⚠ TR 2SD600K E,F
99	ET-336937	TR FET 2SK223 E,F
100	ET-343414	TR FET 2SK270 GR,BL,V
101	ET-336867	TR FET 3SK73 Y
102	ET-323529	TR 2SA608K-NP E,F
103	ET-322778	TR 2SA608K-NP E,F,G
104	ET-305463	TR 2SA970 GR,BL
105	ET-307195	TR 2SC2240 GR,BL
106	ET-336869	TR 2SC2999 C,D
107	ET-336935	TR 2SC3000 E,F
108	ET-316171	TR 2SC536K-NP E,F
109	ET-322775	TR 2SC536K-NP E,F,G
110	ET-618873	TR 2SC930 E,F
111	ET-328440	TR 2SD863-V8 E,F
112	ET-337744	TR 2SK212 D,E
113	EV-315540	R S-FIX H D8 3P 502
114	EV-337995	R S-FIX H RVF8P01 3P 103
115	EV-337993	R S-FIX H RVF8P01 3P 203

1. TUNER EQ P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-1	BA-A1005A040A	PC TUNER/EQ BLK AA-R42 (U)
1-1	BA-A1005A040B	PC TUNER/EQ BLK AA-R42 (C,A)
1-1	BA-A1005A040C	PC TUNER/EQ BLK AA-R42 (S)
1-IC1	EI-322248	IC LA1231N
1-IC2	EI-343349	IC LA3390
1-IC3	EI-202218	IC LA1245
1-IC4	EI-336717	IC TC9125BP
1-IC5	EI-315381	IC TD6102P
1-IC11	EI-213390	IC NJM4558D
1-TR1	ET-336867	TR FET 3SK73 Y
1-TR2	ET-336869	TR 2SC2999 C,D
1-TR3	ET-337744	TR 2SK212 D,E
1-TR4	ET-618873	TR 2SC930 E,F
1-TR5	ET-336935	TR 2SC3000 E,F
1-TR6to8	ET-322775	TR 2SC536K-NP E,F,G
1-TR9	ET-322778	TR 2SA608K-NP E,F,G
1-TR10,18	ET-322775	TR 2SC536K-NP E,F,G
1-TR21	ET-655356	⚠ TR 2SD571 L,M
1-TR22	ET-452531	⚠ TR 2SD313 E,F
1-TR23	ET-322778	TR 2SA608K-NP E,F,G
1-TR24to26	ET-322775	TR 2SC536K-NP E,F,G
1-TR27	ET-336937	TR FET 2SK223 E,F
1-TR35	ET-343414	TR FET 2SK270 GR,BL,V
1-D1to4	ED-336832	D VARACTOR SVC211SP
1-D5,6	ED-301911	D SILICON H DS448
1-D7,8	ED-337605	D VARACTOR SVC333 (A) DOUBLE
1-D9	ED-301911	D SILICON H DS448
1-D10	ED-323057	D VARISTER MV12
1-D12	ED-343412	D ZENER H 05Z6.2 X,Y
1-D13	ED-343412	⚠ D ZENER H 05Z6.2 X,Y
1-D14	ED-343413	⚠ D ZENER H 05Z15 X,Y
1-D15to18	ED-336805	⚠ D SILICON DS135D-KB1 200/1.0A
1-D19,20	ED-301911	D SILICON H DS448
1-D22,23	ED-301911	D SILICON H DS448
1-J1	EJ-336905	PIN J AJC-035-ACB P 4P
1-VR1	EV-337993	R S-FIX H RVF8P01 3P 203
1-VR2	EV-337995	R S-FIX H RVF8P01 3P 103
1-L1	EO-336872	COIL VARI 2 TFEI-ANT-U
1-L2	EO-336873	COIL VARI 2 TFEI-RF-1
1-L3	EO-336938	COIL VARI 2 TFEI-RF-2
1-L4	EO-336871	COIL VARI 2 TFEI-OSC-U
1-L5	EO-332120	COIL FIX 2 103AK-005A 2.20μH
1-T1	EO-336831	COIL IFT 119AC-15266X 10.7MC
1-T2	EO-336878	COIL DET 2 78-1049
1-T3	EO-336879	COIL DET 2 78-1050
1-T4	EO-337598	COIL VARI 2 25A-1353-01
1-T6	EO-202215	COIL OSC 2 7NR-6721Y 100μH
1-T8	EO-344174	COIL IFT 26-5085-02 459.0KHZ
1-T9	EO-202216	COIL IFT 7MC-6733C 460KHZ
1-FL1	ER-315407	FILTER CE SFE10.7MMKA 10.7MHZ
1-FL2	ER-336804	FILTER CE SFE10.7MA8 10.7MHZ
1-FL3	ER-341654	FILTER LC LP 42W-1001
1-FL4	ER-337327	FILTER CE BFU459C4N 0.459MHZ (U,S)
1-FL4	ER-337328	FILTER CE BFU460C4N 0.46MHZ (C,A)
1-FL5	ER-343354	FILTER CE SFZ459B3L 0.461MHZ (U,S)
1-FL5	ER-343355	FILTER CE SFZ460B3L 0.462MHZ (C,A)
1-X1	EI-327074	OSC X'TAL HC-18/U 9MHZ
1-RL1	EP-337416	RELAY SIGNAL G2V-282P-NL 2TR 12V
1-VC1to4	EC-337772	C S-FIX H TZ03Z070E 2.0-7
1-VC5	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-VC7	EC-330692	C S-FIX H TZ03R200E 4.2-20
1-FR1	ER-318248	⚠ R FUSE ERD2FC S10 1/4W 47R0G
1-FR2	ER-200747	⚠ R FUSE ERD2FC 1/4W 68R0G
1-R21,22	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R32	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R46,47	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R60,61	ER-324337	⚠ R CB H S10 FS RDS 1/4W 560J
1-R100	ER-324185	⚠ R CB H S10 FS RDS 1/4W 221J
1-R101	ER-324184	⚠ R CB H S10 FS RDS 1/4W 121J
1-R120	ER-322787	⚠ R CB H S10 FS RDS 1/4W 100J
1-R123	ER-322421	⚠ R CB H S10 FS RDS 1/4W 820J
1-R147	ER-325114	⚠ R CB H S10 FS RDS 1/4W 330J
1-R215,216	ER-327710	⚠ R CB H S10 FS RDS 1/4W 151J
1-C56,57	EC-344486	C PP V F05 PP 391J 50DC (U,S)
1-C56,57	EC-344478	C PP V F05 PP 561J 50DC (C,A)
1-C62,63	EC-344484	C PP V F05 PP 392J 50DC
1-C65	EC-344483	C PP V F05 PP 102J 50DC
1-C71	EC-344481	C PP V F05 PP 4700G 50DC
1-C102	EC-323847	C EC V CUT SM 102M 35.0DC
1-TM1	EJ-309941	TERMINAL W/SCREW UB-1059 P 4P

2. MAIN AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BA-A1005A020A	PC MAIN AMP BLK AA-R42 (U)
2-1	BA-A1005A020B	PC MAIN AMP BLK AA-R42 (C,A)
2-1	BA-A1005A020C	PC MAIN AMP BLK AA-R42 (S)
2-1	BA-A1005A020D	PC MAIN AMP BLK AA-R42-P (U)
2-1	BA-A1005A020E	PC MAIN AMP BLK AA-R42-P (C,A)
2-1	BA-A1005A020F	PC MAIN AMP BLK AA-R42-P(S)
2-IC1	EI-326595	IC STK3062
2-IC2	EI-343406	⚠ IC STK-1070
2-IC3	EI-336761	IC LA6458S
2-TR1	ET-343414	TR FET 2SK270 GR,BL,V
2-TR2	ET-305463	TR 2SA970 GR,BL
2-TR3to5	ET-307195	TR 2SC2240 GR,BL
2-TR6,7	ET-316171	TR 2SC536K-NP E,F
2-TR9	ET-328440	TR 2SD863-V8 E,F
2-TR10	ET-300931	⚠ TR 2SD600K E,F
2-TR11	ET-452531	⚠ TR 2SD313 E,F
2-TR12	ET-301165	⚠ TR 2SB631K E,F
2-TR13	ET-307195	TR 2SC2240 GR,BL
2-D1to3	ED-337153	D SILICON H DS446FA5 F10
2-D5to7	ED-337153	D SILICON H DS446FA5 F10
2-D8	ED-343422	D ZENER H 05Z18 Y
2-D9,10	ED-337153	D SILICON H DS446FA5 F10
2-D11	ED-343415	D ZENER H 05Z36 X
2-D12	ED-330218	D ZENER H HZ15L 2
2-D13	ED-343421	⚠ D ZENER H HZ16L 2
2-D14	ED-330218	⚠ D ZENER H HZ15L 2
2-17,18	ED-301911	D SILICON H DS448
2-D19	ED-309341	D GERMA H 1K34A
2-D20	ED-337153	D SILICON H DS446FA5 F10
2-D21	ED-330320	⚠ D SILICON DBA10C 200/1.0A
2-D22	ED-200749	⚠ D SILICON DBA60-K15 400/6.0A
2-D23	ED-324195	D ZENER H 05Z13 U
2-D24	ED-337153	D SILICON H DS446FA5 F10
2-D25	ED-346133	D ZENER H 05Z3.9 Y
2-SW1	ES-342910	SW PUSH SUL222S 2 THROW
2-SW2	ES-343407	SW PUSH ESB-62901 3 THROW
2-L1	EO-332116	COIL FIX 2 103AK-006A 2.2μH
2-RL1	EP-337159	RELAY SIG G4Z-2282P 2NO 24V
2-VR1	EV-315540	R S-FIX H D8 3P 502
2-FR1to3	ER-326169	⚠ R FUSE ERD2FC F10 1/4W 22R0G
2-R16	ER-333654	⚠ R CB H S15 FS RDS 1/2W 332J
2-R29,30	ER-337754	⚠ R OMF H S15 FS 1W 100J
2-R36	ER-337755	⚠ R OMF H S20 FS 2W 222J
2-R37	ER-338593	⚠ R OMF H S20 FS 2W 821J
2-R38	ER-308875	⚠ R CB H S15 FS RDS 1/2W 100J
2-R39,49	ER-325269	⚠ R CB H S10 FS RDS 1/4W 222J
2-R45	ER-320538	⚠ R OMF H S15 FS 1W 391J
2-R46	ER-333426	⚠ R CB H S10 FS RDS 1/4W 622J
2-R47	ER-337794	⚠ R MF H S15 FS 1W 821J
2-R51	ER-333598	⚠ R CB H S15 FS RDS 1/2W 102J
2-C10,11	EC-343730	C EC V T05 NP SM 100M 16.0DC
2-C12	EC-343855	⚠ C EC V F05 NP SM R22M 50.0DC
2-C13	EC-334013	C EC V CUT NP SM 331M 6.3DC
2-C30,31	EC-343424	C EC V 123M/56DC
2-J1	EJ-343395	PHONE J HLJ0608-023 6.3 (AA-R42)
2-J1	EJ-343396	PHONE J 3P HLJ0608-024 6.3 (AA-R42-P)
2-R1	ER-343423	⚠ R MF H FS 2W 331J
2-IC1,2	EI-315799	IC HA12019

3. CONTROL P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1	BA-A1005A050A	PC CONTROL BLK AA-R42 (U)
3-1	BA-A1005A050B	PC CONTROL BLK AA-R42(C,A)
3-1	BA-A1005A050C	PC CONTROL BLK AA-R42 (S)
3-IC1	EI-343374	IC AA-100
3-IC2	EI-337600	IC AT600
3-IC3to6	EI-337013	IC LB1290
3-IC7,8	EI-338171	IC LC4069UB
3-IC9to13	EI-343373	IC TC9156P
3-IC14	EI-344490	IC LA6458D
3-IC15to17	EI-332259	IC TC4052BP
3-TR1to3	ET-322775	TR 2SC536K-NP E,F,G
3-TR4	ET-323529	TR 2SA608K-NP E,F
3-D1,2	ED-343410	D ZENER H HZ6L A1
3-D11to22	ED-337153	D SILICON H DS446FA5 F10
3-D25	ED-337153	D SILICON H DS446FA5 F10
3-D26	ED-323354	D ZENER H 05Z6.2 X
3-D28,29	ED-200469	D SILICON H DS448 FA5 F10
3-D31to34	ED-301911	D SILICON H DS448
3-J15,16	EJ-343401	PIN J AJC-035-ADB P 4P
3-SW1	ES-343398	SW SLIDE HSW0690-400 2-02-02N (U)
3-SW2	ES-343399	SW SLIDE HSW0690-410 1-01-02N (U,C,A)
3-SW3	ES-343400	SW TACT EVQ-QHR12K
3-T1,2	EO-336833	COIL IFT 7MC-7736Z 460KHZ
3-SR1	ER-343409	R COMP EXB-P87103M
3-SC2	EC-344480	C COMP 05-0009
3-C50	EC-336882	C DOUBLE LAYER 104 5.5DC
3-C60	EC-344482	C PP V F05 PP 161J 50DC (U)

4. POWER P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
4-SW1	ES-343688	⚠ SW PUSH ESB-90279S 01-1EBV (U,S)
4-SW1	ES-343689	⚠ SW PUSH ESB-90164T 01-1UC (C,A)
4-C1	EC-320548	⚠ C CE V F 103Z 250AC(U)
4-C1	EC-314688	⚠ C CE V FZ 103P 125AC (C,A)
4-C1	EC-338496	⚠ C CE V FZ 472P 400AC

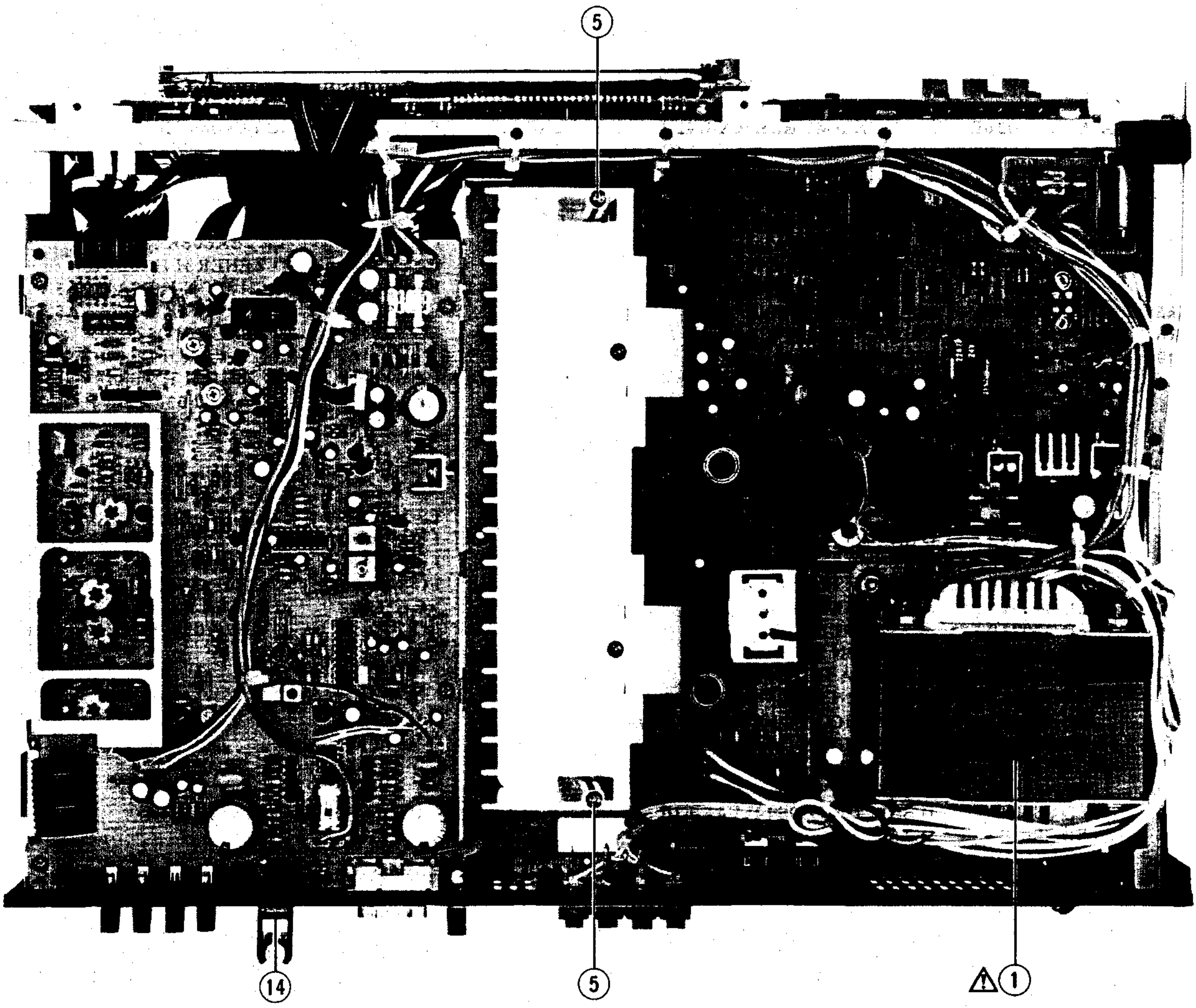
5. KEY BOARD (1) P.C BOARD BLOCK

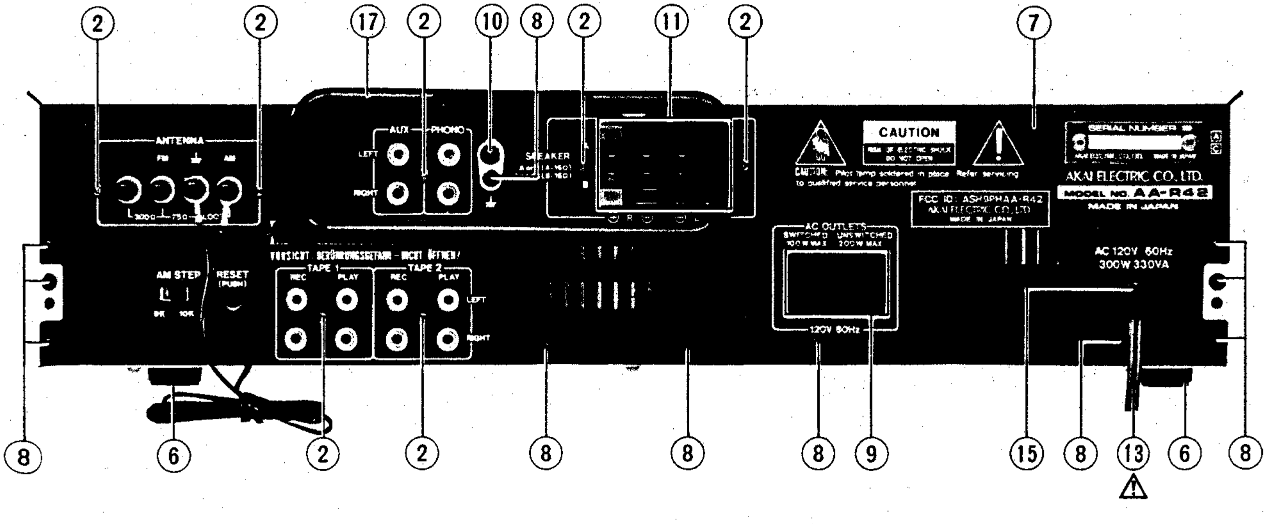
REF. NO.	PARTS NO.	DESCRIPTION
5-SW1to16	ES-336780	SW TACT KHH10902
5-1	EM-343397	IND FL BG-136Z

6. KEY BOARD (2) P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-SW1to20	ES-336780	SW TACT KHH10902

ASSEMBLY BLOCK

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ANTENNA
FM
AM
AUX
PHONO
LEFT
RIGHT
SPEAKER
CAUTION
AKAI ELECTRIC CO., LTD.
MODEL NO. AA-R42
MADE IN JAPAN
FCC ID: ASH9PHAA-R42
AM STEP
RESET (PUSH)
TAPE 1
TAPE 2
REC
PLAY
AC OUTLETS
SWITCHED
UNSWITCHED
120V 60Hz
AC 120V 60Hz 300W 330VA
⑧
⑥
②
②
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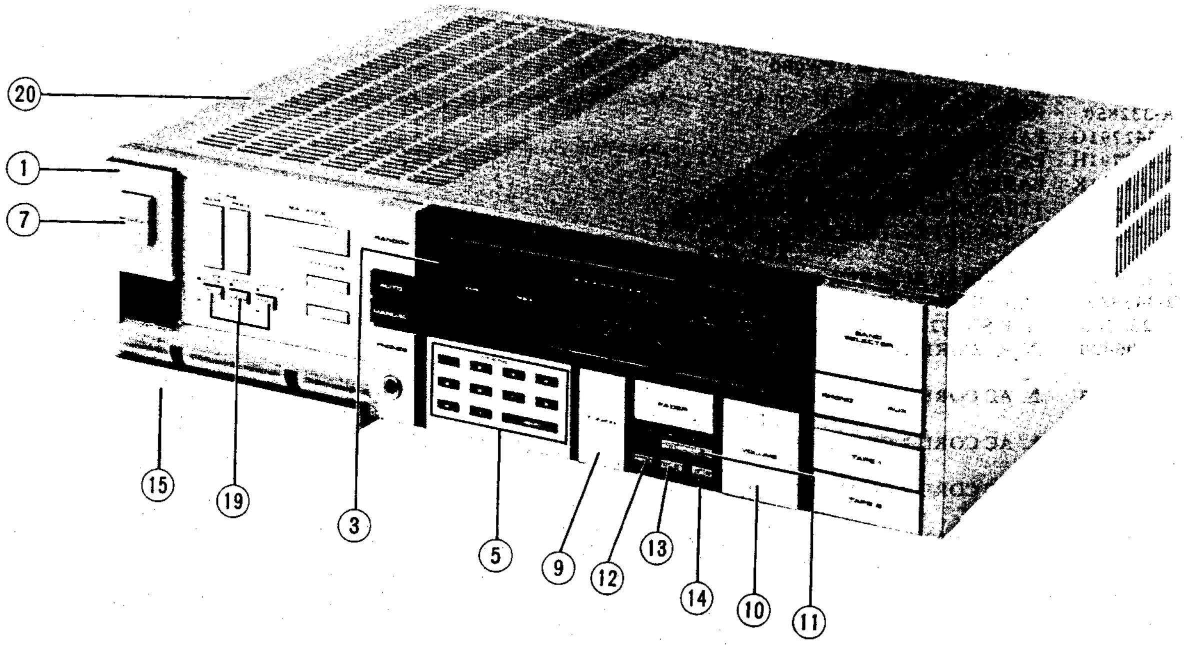
7. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
7-1	BT-343402	⚠ TRANS POWER AA-R42T-70 (U)
7-1x	BT-343403	⚠ TRANS POWER AA-R42T-30 (C)
7-1x	BT-343404	⚠ TRANS POWER AA-R42T-20 (A)
7-1x	BT-343405	⚠ TRANS POWER AA-R42T-50 (S)
7-2	ZS-522865	T2BR30x12STL BNI
7-3x	ZS-530673	ROLLER SCREW (A)
7-4x	ZS-498273	T2BR30X08STL CMT PW080
7-5	ZS-342792A	SCREW HEAT-SINK (A)
7-6	SA-332850	ROUND FOOT
7-7	SP-342791G	PANEL REAR AA-R42 (U)
7-7x	SP-342791H	PANEL REAR AA-R42 (C,A)
7-7x	SP-342791K	PANEL REAR AA-R42 (S)
7-8	ZS-319460	T2BR30x06STL BZN PROJECTION
7-9	EJ-343362	⚠ SOCKET OUTLET S2T732T174 JUC (U,C,A)
7-10	EJ-329610	TERMINAL W/SCREW UB-0067 L 1P
7-11	EJ-343389	TERMINAL PUSH S-Q2780#01 S 8P
7-12x	ER-233583	⚠ R SD 1/2W 225K (C,A)
7-13	EW-306428	⚠ AC CORD 2 CORES KP-205A, VFF J (U)
7-13x	EW-343363	⚠ AC CORD 2 CORES KP-8, SPT-2 UC (C)
7-13x	EW-328245	⚠ AC CORD 2 CORES KP-8, SPT-1 105°C UC (A)
7-13x	EW-336924	⚠ AC CORD 2 CORES KP-560, LTSA-2F (S)
7-14	SZ-332739	HOLDER ANTENNA
7-15	SZ-631945	STRAIN RELIEF SR-4N-4
7-16x	ZS-463353	T2BR30x08STL BNI
7-17	EE-337976	ANT LOOP LA-200A
7-18x	EF-326639	⚠ FUSE TSC A 250V 3.15A (U) (F1,2)
7-18x	EF-346115	⚠ FUSE TSC 125V 6.30A (C) (F1)
7-18x	EF-305703	⚠ FUSE TSC 125V 0.63A (C) (F3,4)
7-18x	EF-309390	⚠ FUSE TSC 125V 0.50A (C) (F6,7)
7-18x	EF-346115	⚠ FUSE TSC 125V 6.30A (A) (F1)
7-18x	EF-305703	⚠ FUSE TSC 125V 0.63A (A) (F3,4)
7-18x	EF-309390	⚠ FUSE TSC 125V 0.50A (A) (F6,7)
7-18x	EF-691007	⚠ FUSE SEMKO T 250V 3.15A(S)(F1)
7-18x	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (S)(F3,4)
7-18x	EF-300601	⚠ FUSE FST3100 T 250V 0.50A (S)(F6,7)

FINAL ASSEMBLY BLOCK



8. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
8-1	BD-A1005A070A	PANEL FRONT BLK AA-R42
8-1x	BD-A1005A070B	PANEL FRONT BLK AA-R42-P
8-2x	BD-B342799A	PANEL FRONT (A) PART
8-2x	BD-B342799B	PANEL FRONT (A)-P PART
8-3	SZ-342812	WINDOW FRONT
8-4x	ZS-310343	PLX PAN30x06STL CMT
8-5	SK-B342817	KNOB OPERATION PART
8-5x	SK-B342817B	KNOB OPERATION-P PART
8-6x	ZS-325503	PLX PAN30x12STL CMT
8-7	SK-342820A	KNOB POWER
8-7x	SK-34820B	KNOB POWER-P
8-8x	ZG-322189	SPRING (B)
8-9	SK-B342806A	KNOB CAP (C-1) PART
8-9x	SK-B342806B	KNOB CAP (C-1)-P PART
8-10	SK-B342809A	KNOB CAP (E) PART
8-10x	SK-B342809B	KNOB CAP (E)-P PART
8-11	SK-342815	KNOB DEFEAT
8-12	SK-342816A	KNOB TONE (A)
8-13	SK-342816B	KNOB TONE (B)
8-14	SK-342816C	KNOB TONE (C)
8-15	SP-342822E	PANEL DOOR AA-R42
8-15x	SP-342822F	PANEL DOOR AA-R42-P
8-16x	SZ-342794	GUIDE (L)
8-17x	SZ-342795	GUIDE (R)
8-18x	SZ-342796	SLIDER
8-19	SK-342819A	KNOB PUSH
8-19x	SK-342819B	KNOB PUSH-P
8-20	SP-342823A	COVER UPPER
8-20x	SP-342823B	COVER UPPER-P

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1. MODEL AA-R22/L

PARTS NO.	REF. NO.
BA-A1003A030A	2-1
BA-A1003A030B	2-1
BA-A1003A030C	2-1
BA-A1003A030D	2-1
BA-A1003A050A	4-1
BA-A1003A050B	4-1
BA-A1003A050C	4-1
BA-A1003A060A	3-1
BA-A1003A060B	3-1
BA-A1003A060C	3-1
BA-A1003A060D	3-1
BA-A1003A060E	3-1
BA-A1003A060F	3-1
BA-A1003A060G	3-1
BA-A1003A060H	3-1
BA-A1003A070A	1-1
BA-A1003A070B	1-1
BA-A1003A070C	1-1
BA-A1003A070D	1-1
BD-A1003A100A	6-1
BD-A1003A100B	6-1x
BD-A1003A100C	6-1x
BD-A1003A100D	6-1x
BD-B342760A	6-2x
BD-B342760B	6-2x
BT-343356	5-11
BT-343357	5-11x
BT-343358	5-11x
BT-343359	5-11x
BT-343360	5-11x
EC-325320	3-C14
EC-330692	1-VC6
EC-330692	1-VC5
EC-330692	1-VC7
EC-337772	1-VC1to4
EC-343976	3-C16
EC-344157	2-C13
EC-344478	1-C56
EC-344478	1-C57
EC-344480	2-SC1
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EC-344482	1-C72
EC-344482	4-C25
EC-344483	1-C65
EC-344484	1-C62,63
EC-344486	1-C56
EC-344486	1-C57
ED-200213	3-D7
ED-200469	2-D11
ED-200469	2-D12
ED-200469	2-D13
ED-300257	2-D14
ED-301911	1-D19to23
ED-301911	1-D9
ED-301911	1-D25
ED-301911	1-D5,6
ED-301911	2-D3to10
ED-307690	4-D1,2
ED-323057	1-D10
ED-330207	3-D8,9
ED-336805	1-D15to18
ED-336832	1-D1to4
ED-337605	1-D7,8
ED-337990	3-D3
ED-343410	2-D1,2
ED-343412	1-D12
ED-343412	1-D13
ED-343413	1-D14
ED-343854	3-D5,6
ED-345149	3-D1,2
ED-345149	3-D4
ED-346060	1-D24
EE-337976	5-21
EF-249851	5-20x
EF-306951	5-20x
EF-306956	5-20x
EF-306957	5-20x
EF-309390	5-20x
EF-311839	5-20x
EF-325683	5-20x
EF-326613	5-20x
EF-601301	5-20x
EF-602550	5-20x
EF-668474	5-20x
EI-202218	1-IC3
EI-300042	2-IC14
EI-315381	1-IC5
EI-322248	1-IC1
EI-322599	3-IC1
EI-327074	1-X1
EI-332259	4-IC2to4
EI-336717	1-IC4
EI-336761	2-IC1
EI-336794	2-IC11,12
EI-337600	2-IC10
EI-338171	2-IC9
EI-338171	2-IC15
EI-343349	1-IC2
EI-343371	2-IC4
EI-343373	2-IC2,3
EI-343374	2-IC5
EI-343381	3-IC1
EI-343417	2-IC6to8
EI-343417	2-IC13
EI-344764	4-IC1
EJ-309941	1-TM1
EJ-329610	5-3
EJ-343362	5-2
EJ-343365	4-J1to3
EJ-343378	3-TM1
EJ-343379	3-J2
EJ-343380	3-J2
EM-343376	2-IND1
EO-202215	1-T6
EO-202216	1-T9
EO-307786	1-T7
EO-332120	1-L5
EO-336831	1-T1
EO-336833	2-T1,2
EO-336871	1-L4
EO-336872	1-L1
EO-336873	1-L2
EO-336878	1-T2
EO-336879	1-T3
EO-336938	1-L3
EO-337598	1-T4
EO-337599	1-T5
EO-337880	3-L1
EO-343351	1-T8
ER-200940	3-R8
ER-233583	5-14x
ER-306127	3-R23
ER-306127	3-R19
ER-308028	3-R18
ER-311685	3-R10
ER-315407	1-FL1
ER-318248	1-FR1
ER-321153	3-R17
ER-322421	1-R123
ER-322591	3-R7
ER-322787	1-R120
ER-322787	3-R28
ER-323074	4-R11
ER-324184	1-R101
ER-324185	1-R100
ER-324337	1-R32,33
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ER-325114	1-R147
ER-325269	2-R12,13
ER-325269	4-R10
ER-328065	3-R27
ER-333363	3-R20
ER-333625	3-R26
ER-336804	1-FL2
ER-337327	1-FL4
ER-337328	1-FL4
ER-341654	1-FL3
ER-343352	1-FL5
ER-343353	1-FL5
ER-343419	2-SR2to4
ER-343420	2-SR1
ES-328777	4-SW3
ES-336780	2-SW27,28
ES-336780	2-SW30,31
ES-336780	2-SW21to25
ES-336780	2-SW1
ES-336780	2-SW5,13
ES-336780	2-SW6to12
ES-336780	2-SW2to4
ES-336780	2-SW26,29
ES-336780	2-SW14to20
ES-343364	5-9x
ES-343366	4-SW1
ES-343367	4-SW2
ES-343377	3-SW1
ES-343688	3-SW2
ES-343689	3-SW2
ET-318239	3-TR1
ET-322598	3-TR3
ET-322775	1-TR28
ET-322775	1-TR16
ET-322775	1-TR18to20
ET-322775	1-TR30
ET-322778	1-TR12to15
ET-322778	1-TR23to26
ET-322778	1-TR29
ET-323529	3-TR4
ET-324134	3-TR2
ET-330588	1-TR17
ET-336867	1-TR1
ET-336869	1-TR2
ET-336935	1-TR5
ET-336937	1-TR27
ET-337036	1-TR8to10
ET-337744	1-TR3
ET-338410	1-TR11
ET-342707	2-TR1,2
ET-452531	1-TR22
ET-618873	1-TR4
ET-6212351	1-TR6,7
ET-655356	1-TR21
EV-337993	1-VR1
EV-337995	1-VR2
EW-305691	5-5x
EW-306428	5-5
EW-336923	5-5x
EW-336924	5-5x
EW-343363	5-5x
EW-347025	5-5x
SA-332850	5-17
SK-342819A	6-10
SK-342819B	6-10x
SK-342820A	6-3
SK-342820B	6-3x
SP-342756A	5-1
SP-342756B	5-1x
SP-342756C	5-1x
SP-342756D	5-1x
SP-342756E	5-1x
SP-342756F	5-1x
SP-342759A	6-12
SP-342759B	6-12x
SP-342763A	6-7
SP-342763B	6-7x
SP-342763C	6-7x
SP-342763D	6-7x
SZ-332739	5-8
SZ-342762	6-8
SZ-342765A	6-5x
SZ-342765B	6-5x
SZ-342765C	6-6x
SZ-342765D	6-6x
SZ-631945	5-6
ZG-322189	6-4x
ZS-308846	6-13x
ZS-309315	5-7
ZS-309315	5-10x
ZS-310343	6-9x
ZS-311745	6-14x
ZS-319460	5-4
ZS-319460	5-12
ZS-332541	5-16
ZS-463353	5-15x
ZS-463353	5-13
ZS-498273	5-19x
ZS-498273	6-11x
ZS-565942	5-18x

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2. MODEL AA-R32/L

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BA-A1004A020A	2-1	ED-346157	2-D23	ER-336804	1-FL2	SP-342822C	8-15x
BA-A1004A020B	2-1	EE-337976	7-15	ER-337327	1-FL4	SP-342822D	8-15x
BA-A1004A020C	2-1	EF-300599	7-16x	ER-337328	1-FL4	SP-342823A	8-17
BA-A1004A020D	2-1	EF-309390	7-16x	ER-337756	2-FR3,4	SP-342823B	8-17x
BA-A1004A020E	2-1	EF-326639	7-16x	ER-337773	2-R21	SZ-342794	8-19x
BA-A1004A020F	2-1	EF-326639	7-16x	ER-341654	1-FL3	SZ-342795	8-20x
BA-A1004A050A	1-1	EF-346139	7-16x	ER-343354	1-FL5	SZ-342796	8-21x
BA-A1004A050B	1-1	EI-202218	1-IC3	ER-343355	1-FL5	SZ-342812	8-3
BA-A1004A050C	1-1	EI-300042	3-IC9,10	ER-343409	3-SR1	SZ-631945	7-8
BA-A1004A050D	1-1	EI-315381	1-IC5	ES-336780	4-SW13to16	ZG-322189	8-7x
BA-A1004A060A	3-1	EI-315799	2-IC1,2	ES-336780	4-SW1to11	ZS-308846	8-18
BA-A1004A060B	3-1	EI-322248	1-IC1	ES-336780	5-SW11to20	ZS-310343	8-4x
BA-A1004A060C	3-1	EI-323563	2-IC1	ES-336780	5-SW1to8	ZS-319460	7-13
BA-A1004A060D	3-1	EI-327074	1-X1	ES-343367	7-9x	ZS-319460	7-4
BD-A1004A080A	8-1	EI-332259	3-IC15to17	ES-343391	2-SW1	ZS-325503	8-8x
BD-A1004A080B	8-1x	EI-336717	1-IC4	ES-343392	2-SW2	ZS-342792B	7-19
BD-B342799C	8-2x	EI-336761	2-IC3	ES-343398	3-SW1	ZS-463353	7-10x
BD-B342799D	8-2x	EI-337013	3-IC3to6	ES-343399	3-SW2	ZS-522865	7-6
BT-343384	7-18	EI-337600	3-IC2	ES-343400	3-SW3	ZS-530673	7-14x
BT-343385	7-18x	EI-338171	3-IC7,8	ES-343688	6-SW1		
BT-343386	7-18x	EI-343349	1-IC2	ES-343689	6-SW1		
BT-343387	7-18x	EI-343375	3-IC11to13	ET-300931	2-TR9		
BT-343388	7-18x	EI-343374	3-IC1	ET-301165	2-TR11		
EC-314688	6-C1	EI-343390	2-IC2	ET-305463	2-TR1		
EC-320548	2-C22,23	EI-344490	3-IC14	ET-307195	2-TR12		
EC-320548	6-C1	EI-344764	1-IC11	ET-307195	2-TR2to6		
EC-330692	1-VC5	EJ-329610	7-3	ET-322775	1-TR19,20		
EC-330692	1-VC7	EJ-336905	1-J1	ET-322775	1-TR16		
EC-330692	1-VC6	EJ-343362	7-2	ET-322775	1-TR18		
EC-336882	3-C50	EJ-343389	7-5	ET-322775	1-TR6to8		
EC-337151	2-C16	EJ-343395	2-J1	ET-322775	1-TR10		
EC-337772	1-VC1to4	EJ-343396	2-J1	ET-322775	1-TR28		
EC-338380	2-C10	EJ-343401	3-J15,16	ET-322775	1-TR24to26		
EC-338496	6-C1	EM-343397	4-IND1	ET-322775	3-TR1,2		
EC-343393	2-C28,29	EO-202215	1-T6	ET-322778	1-TR9		
EC-343855	2-C9	EO-202216	1-T9	ET-322778	1-TR12to15		
EC-344478	1-C57	EO-307786	1-T7	ET-322778	1-TR23		
EC-344478	1-C56	EO-332120	1-L5	ET-328440	2-TR8		
EC-344480	3-SC2	EO-336831	1-T1	ET-330588	1-TR17		
EC-344481	1-C71	EO-336833	3-T1,2	ET-336867	1-TR1		
EC-344482	1-C72	EO-336871	1-L4	ET-336869	1-TR2		
EC-344482	3-C60	EO-336872	1-L1	ET-336935	1-TR5		
EC-344483	1-C65	EO-336873	1-L2	ET-336937	1-TR27		
EC-344484	1-C62,63	EO-336878	1-T2	ET-337744	1-TR3		
EC-344486	1-C56	EO-336879	1-T3	ET-338410	1-TR11		
EC-344486	1-C57	EO-336938	1-L3	ET-452531	1-TR22		
ED-200749	2-D20	EO-337598	1-T4	ET-452531	2-TR10		
ED-301911	1-D9	EO-337599	1-T5	ET-618873	1-TR4		
ED-301911	1-D5,6	EO-337880	2-L1	ET-655356	1-TR21		
ED-301911	1-D25	EO-344174	1-T8	EV-315540	2-VR1		
ED-301911	1-D19	EP-337159	2-RL1	EV-337993	1-VR1		
ED-301911	1-D22,23	ER-200941	1-R215,216	EV-337995	1-VR2		
ED-301911	2-D1to5	ER-233583	7-11x	EW-328245	7-12x		
ED-301911	2-D18	ER-306127	2-R47	EW-306428	7-12		
ED-301911	2-D21	ER-308875	2-R25,26	EW-313882	7-12x		
ED-301911	2-D7to11	ER-308875	2-R35	EW-336924	7-12x		
ED-301911	3-D29	ER-313699	2-R49,50	EW-343363	7-12x		
ED-301911	3-D30	ER-315407	1-FL1	EW-347025	7-12x		
ED-301911	3-D27	ER-318248	1-FR1	SA-332850	7-17		
ED-301911	3-D23,24	ER-318248	2-FR1,2	SK-B342806A	8-9		
ED-301911	3-D28	ER-322421	1-R123	SK-B342806B	8-9x		
ED-309341	2-D12	ER-322739	7-7	SK-B342809A	8-10		
ED-323057	1-D10	ER-322787	1-R120	SK-B342809B	8-10x		
ED-323354	3-D26	ER-322787	2-R51	SK-B342817	8-5		
ED-325115	2-D6	ER-323074	2-R42	SK-B342817B	8-5x		
ED-330218	2-D14	ER-323075	2-R41	SK-342815	8-11		
ED-330218	2-D16,17	ER-324184	1-R101	SK-342816A	8-12		
ED-330219	2-D15	ER-324185	1-R100	SK-342816B	8-13		
ED-336805	1-D15to18	ER-324185	1-R32	SK-342816C	8-14		
ED-336832	1-D1to4	ER-324337	1-R21,22	SK-342819A	8-16		
ED-337153	2-D22	ER-324337	1-R60,61	SK-342819B	8-16x		
ED-337153	3-D25	ER-324337	1-R46,47	SK-342820A	8-6		
ED-337153	3-D11to22	ER-325114	1-R147	SK-342820B	8-6x		
ED-337605	1-D7,8	ER-325269	2-R39,40	SP-342791A	7-1		
ED-343410	3-D1,2	ER-325269	2-R9,11	SP-342791B	7-1x		
ED-343412	1-D12	ER-325269	2-R12,15	SP-342791D	7-1x		
ED-343412	1-D13	ER-328519	2-FR5,6	SP-342791E	7-1x		
ED-343413	1-D14	ER-333044	2-R34	SP-342791F	7-1x		
ED-344177	2-D13	ER-333067	2-R33	SP-342822A	8-15		
ED-346116	2-D19	ER-333598	2-R43	SP-342822B	8-15x		

3. MODEL AA-R42

PARTS NO.	REF. NO.
BA-A1005A020A	2-1
BA-A1005A020B	2-1
BA-A1005A020C	2-1
BA-A1005A020D	2-1
BA-A1005A020E	2-1
BA-A1005A020F	2-1
BA-A1005A040A	1-1
BA-A1005A040B	1-1
BA-A1005A040C	1-1
BA-A1005A050A	3-1
BA-A1005A050B	3-1
BA-A1005A050C	3-1
BD-A1005A070A	8-1
BD-A1005A070B	8-1x
BD-B342799A	8-2x
BD-B342799B	8-2x
BT-343402	7-1
BT-343403	7-1x
BT-343404	7-1x
BT-343405	7-1x
EC-314688	4-C1
EC-320548	4-C1
EC-323847	1-C102
EC-330692	1-VC5
EC-330692	1-VC7
EC-334013	2-C13
EC-336882	3-C50
EC-337772	1-VC1to4
EC-338496	4-C1
EC-343424	2-C30,31
EC-343730	2-C10,11
EC-343855	2-C12
EC-344478	1-C56,57
EC-344480	3-SC2
EC-344481	1-C71
EC-344482	3-C60
EC-344483	1-C65
EC-344484	1-C62,63
EC-344486	1-C56,57
ED-200469	3-D28,29
ED-200749	2-D22
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ED-301911	1-D9
ED-301911	1-D22,23
ED-301911	1-D5,6
ED-301911	2-17,18
ED-301911	3-D31to34
ED-309341	2-D19
ED-323057	1-D10
ED-323354	3-D26
ED-324195	2-D23
ED-330218	2-D14
ED-330218	2-D12
ED-330320	2-D21
ED-336805	1-D15to18
ED-336832	1-D1to4
ED-337153	2-D20
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ED-337153	2-D24
ED-337153	2-D5to7
ED-337153	2-D1to3
ED-337153	3-D25
ED-337153	3-D11to22
ED-337605	1-D7,8
ED-343410	3-D1,2
ED-343412	1-D12
ED-343412	1-D13
ED-343413	1-D14
ED-343415	2-D11
ED-343421	2-D13
ED-343422	2-D8
ED-346133	2-D25
EE-337976	7-17
EF-300601	7-18x
EF-305703	7-18x
EF-305703	7-18x
EF-309390	7-18x
EF-309390	7-18x
EF-326639	7-18x
EF-346115	7-18x
EF-346115	7-18x
EF-593706	7-18x
EF-691007	7-18x
EI-202218	1-IC3
EI-213390	1-IC11
EI-315381	1-IC5
EI-315799	2-IC1,2
EI-322248	1-IC1
EI-326595	2-IC1
EI-327074	1-X1
EI-332259	3-IC15to17
EI-336717	1-IC4
EI-336761	2-IC3
EI-337013	3-IC3to6
EI-337600	3-IC2
EI-338171	3-IC7,8
EI-343349	1-IC2
EI-343373	3-IC9to13
EI-343374	3-IC1
EI-343406	2-IC2
EI-344490	3-IC4
EJ-309941	1-TM1
EJ-329610	7-10
EJ-336905	1-J1
EJ-343362	7-9
EJ-343389	7-11
EJ-343395	2-J1
EJ-343396	2-J1
EJ-343401	3-J15,16
EM-343397	5-1
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EO-202216	1-T9
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EO-332120	1-L5
EO-336831	1-T1
EO-336833	3-T1,2
EO-336871	1-L4
EO-336872	1-L1
EO-336873	1-L2
EO-336878	1-T2
EO-336879	1-T3
EO-336938	1-L3
EO-337598	1-T4
EO-344174	1-T8
EP-337159	2-RL1
EP-337416	1-RL1
ER-200747	1-FR2
ER-233583	7-12x
ER-308875	2-R38
ER-315407	1-FL1
ER-318248	1-FR1
ER-320538	2-R45
ER-322421	1-R123
ER-322787	1-R120
ER-324184	1-R101
ER-324185	1-R32
ER-324185	1-R100
ER-324337	1-R21,22
ER-324337	1-R46,47
ER-324337	1-R60,61
ER-325114	1-R147
ER-325269	2-R39,40
ER-326169	2-FR1to3
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ER-333598	2-R51
ER-333654	2-R16
ER-336804	1-FL2
ER-337327	1-FL4
ER-337328	1-FL4
ER-337754	2-R29,30
ER-337755	2-R36
ER-337794	2-R47
ER-338593	2-R37
ER-341654	1-FL3
ER-343354	1-FL5
ER-343355	1-FL5
ER-343409	3-SR1
ER-343423	2-R1
ES-336780	5-SW1to16
ES-336780	6-SW1to20
ES-342910	2-SW1
ES-343398	3-SW1
ES-343399	3-SW2
ES-343400	3-SW3
ES-343407	2-SW2
ES-343688	4-SW1
ES-343689	4-SW1
ET-300931	2-TR10
ET-301165	2-TR12
ET-305463	2-TR2
ET-307195	2-TR3to5
ET-307195	2-TR13
ET-316171	2-TR6,7
ET-322775	1-TR10,18
ET-322775	1-TR24to26
ET-322775	1-TR6to8
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ET-322778	1-TR9
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ET-323529	3-TR4
ET-328440	2-TR9
ET-336867	1-TR1
ET-336869	1-TR2
ET-336935	1-TR5
ET-336937	1-TR27
ET-337744	1-TR3
ET-343414	1-TR35
ET-343414	2-TR1
ET-452531	1-TR22
ET-452531	2-TR11
ET-618873	1-TR4
ET-655356	1-TR21
EV-315540	2-VR1
EV-337993	1-VR1
EV-337995	1-VR2
EW-328245	7-13x
EW-306428	7-13
EW-336924	7-13x
EW-343363	7-13x
SA-332850	7-6
SK-B342806A	8-9
SK-B342806B	8-9x
SK-B342809A	8-10
SK-B342809B	8-10x
SK-B342817	8-5
SK-B342817B	8-5x
SK-342815	8-11
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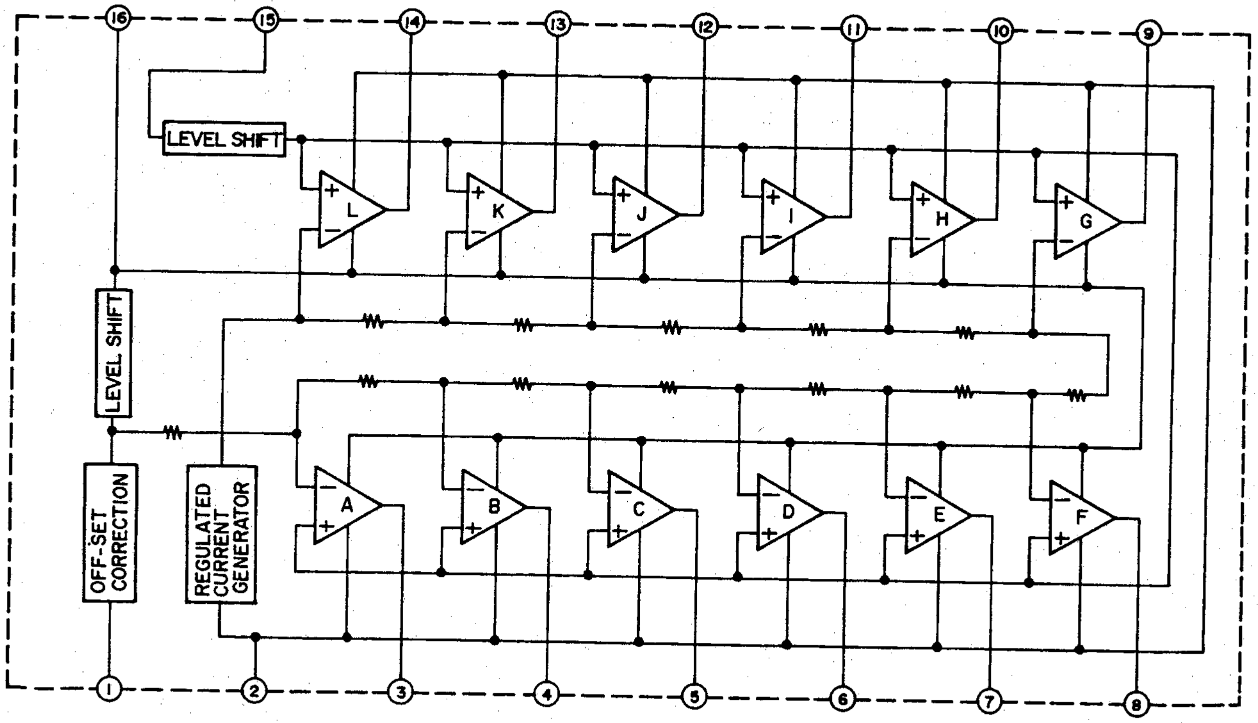
SK-342820A	8-7
SK-342820B	8-7x
SP-342791G	7-7
SP-342791H	7-7x
SP-342791K	7-7x
SP-342822E	8-15
SP-342822F	8-15x
SP-342823A	8-20
SP-342823B	8-20x
SZ-332739	7-14
SZ-342794	8-16x
SZ-342795	8-17x
SZ-342796	8-18x
SZ-342812	8-3
SZ-631945	7-15
ZG-322189	8-8x
ZS-310343	8-4x
ZS-319460	7-8
ZS-325503	8-6x
ZS-342792A	7-5
ZS-463353	7-16x
ZS-498273	7-4x
ZS-522865	7-2
ZS-530673	7-3x

SECTION 5

SCHEMATIC DIAGRAM

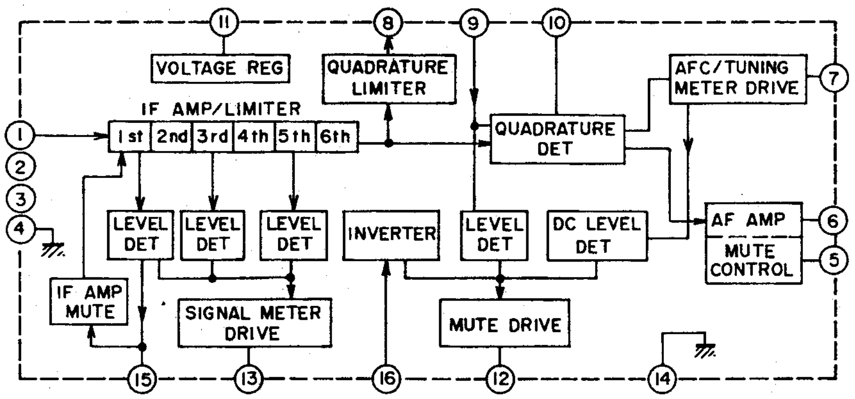
1. SCHEMATIC DIAGRAM OF ICs 98
2. AA-R22/L NO. 3-1 821026A CONNECTION DIAGRAM 107
3. AA-R22 TUNER NO. 3-2 821027A SCHEMATIC DIAGRAM 108
4. AA-R22L TUNER NO. 3-3 821028A SCHEMATIC DIAGRAM 109
5. AA-R32/L NO. 4-1 821029A CONNECTION DIAGRAM 110
6. AA-R32/L AMP NO. 4-2 821030A SCHEMATIC DIAGRAM 111
7. AA-R32 TUNER NO. 4-3 821031A SCHEMATIC DIAGRAM 112
8. AA-R32L NO. 4-4 821032A SCHEMATIC DIAGRAM 113
9. AA-R42 NO. 3-1 821034A CONNECTION DIAGRAM 114
10. AA-R42 AMP NO. 3-2 821035A SCHEMATIC DIAGRAM 115
11. AA-R42 NO. 3-3 821036A SCHEMATIC DIAGRAM 116

HA12019

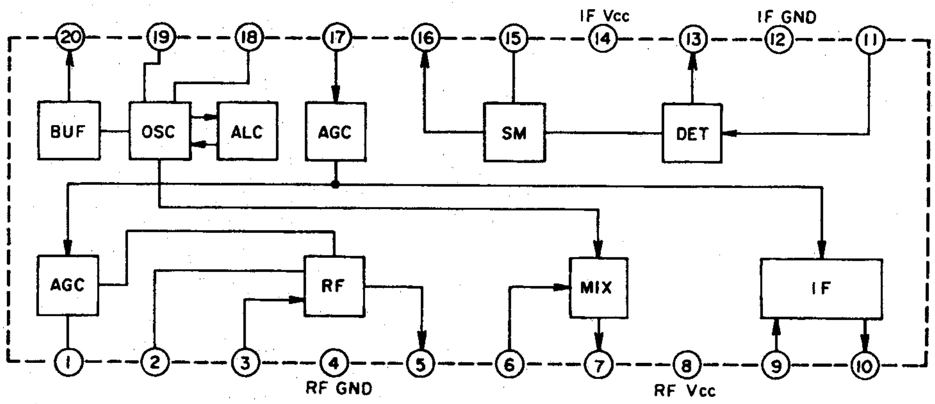


16
15
14
13
12
11
10
9
LEVEL SHIFT
L
K
J
I
H
G
LEVEL SHIFT
OFF-SET CORRECTION
REGULATED CURRENT GENERATOR
A
B
C
D
E
F
1
2
3
4
5
6
7
8

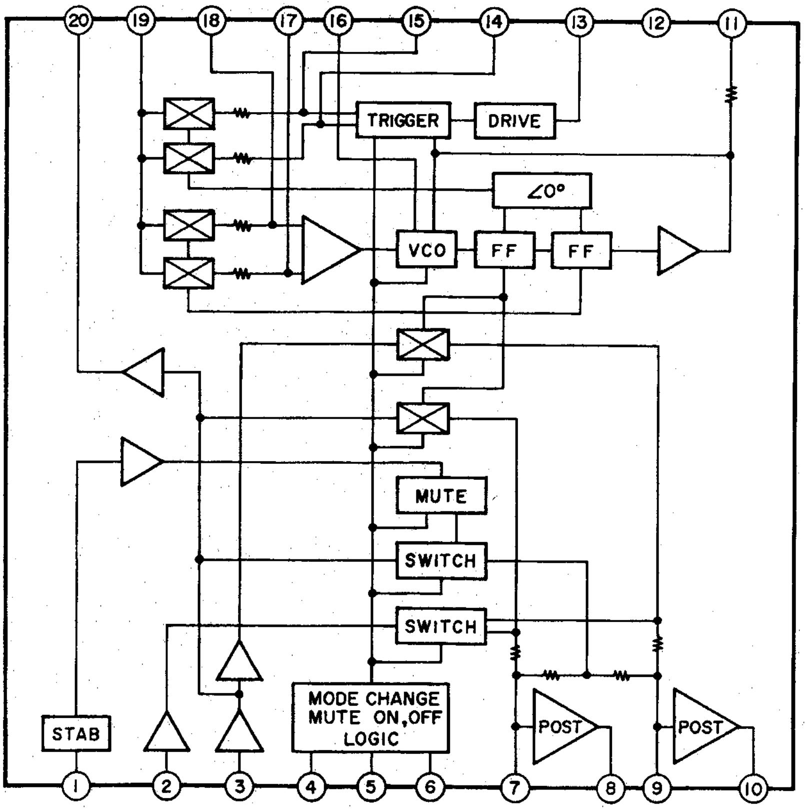
LA1231N


VOLTAGE REG
QUADRATURE LIMITER
IF AMP/LIMITER
1st
2nd
3rd
4th
5th
6th
QUADRATURE DET
AFC/TUNING METER DRIVE
LEVEL DET
LEVEL DET
LEVEL DET
INVERTER
LEVEL DET
DC LEVEL DET
AF AMP
MUTE CONTROL
IF AMP MUTE
SIGNAL METER DRIVE
MUTE DRIVE
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯

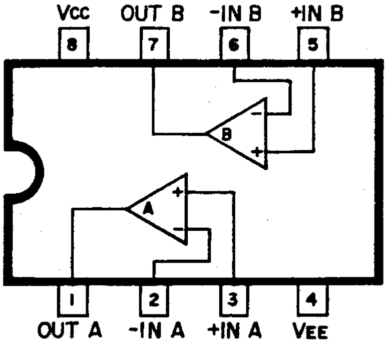
LA1245


IF Vcc
IF GND
⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
⑫
⑪
BUF
OSC
ALC
AGC
SM
DET
AGC
RF
MIX
IF
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
RF GND
RF Vcc

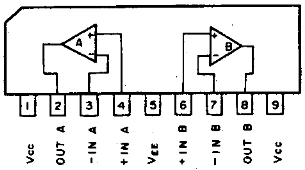
LA3390

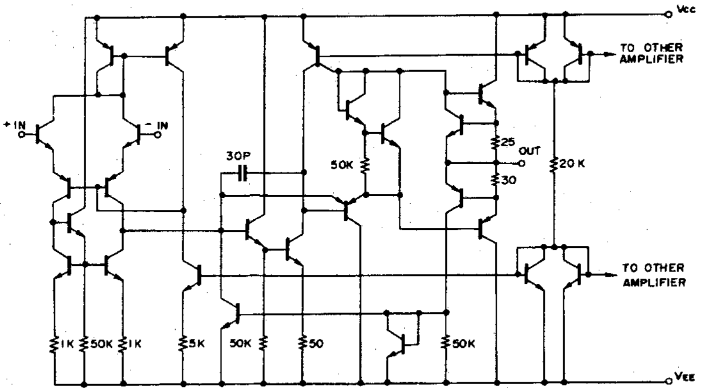

⑳
⑲
⑱
⑰
⑯
⑮
⑭
⑬
⑫
⑪
TRIGGER
DRIVE
∠0°
VCO
FF
FF
MUTE
SWITCH
SWITCH
MODE CHANGE MUTE ON,OFF LOGIC
STAB
POST
POST
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

LA6458D/M5218P-21/NJM4558D


Vcc
OUT B
-IN B
+IN B
8
7
6
5
B
A
1
2
3
4
OUT A
-IN A
+IN A
VEE

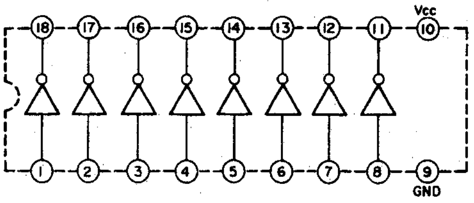
LA6458S/TA75458S

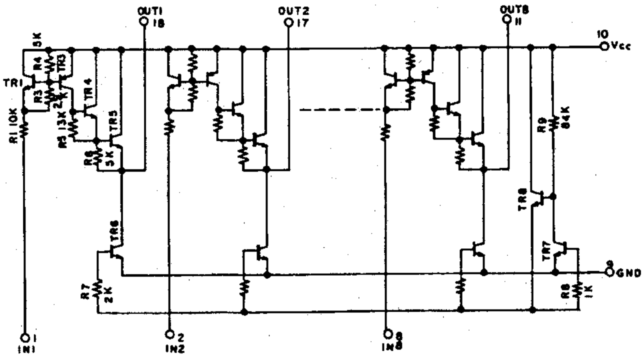

A
B
1
2
3
4
5
6
7
8
9
Vcc
OUT A
-IN A
+IN A
VEE
+IN B
-IN B
OUT B
Vcc


Vcc
TO OTHER AMPLIFIER
+IN
-IN
30P
50K
25
OUT
30
20K
TO OTHER AMPLIFIER
1K
50K
1K
5K
50K
50
50K
VEE

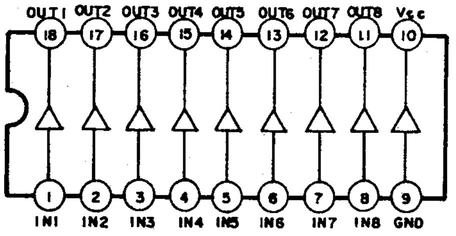
(EACH AMPLIFIER)

LB1240


18
17
16
15
14
13
12
11
Vcc
10
1
2
3
4
5
6
7
8
9
GND


OUT1
18
OUT2
17
OUT8
11
10
Vcc
5K
R4
TR3
TR1
R3
2K
TR4
R1 10K
R5 13K
TR5
R6
5K
R9
84K
TR8
TR6
TR7
R7
2K
R8
1K
9
GND
1
IN1
2
IN2
8
IN8

LB1290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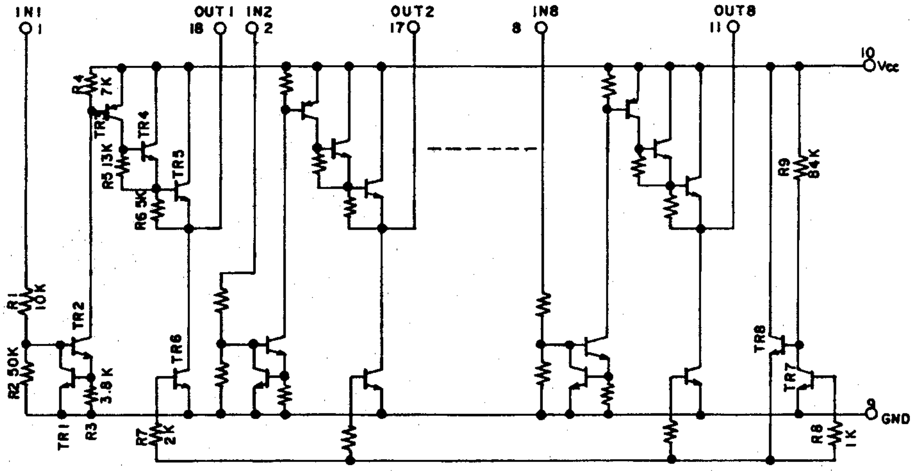
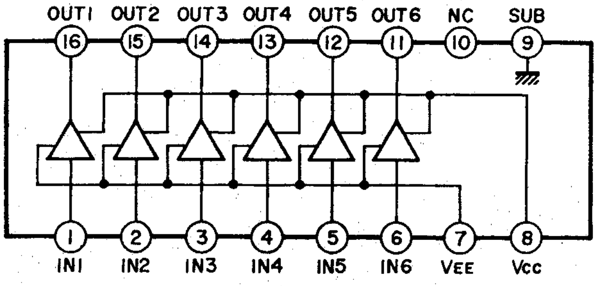
18 17 16 15 14 13 12 11 10
1 2 3 4 5 6 7 8 9
IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 GND


IN1 1
OUT1 18
IN2 2
OUT2 17
IN8 8
OUT8 11
10 Vcc
9 GND
R4 7K
TR3
TR4
R5 13K
TR5
R6 5K
R1 10K
R2 50K
TR2
TR1
R3 3.8K
TR6
R7 2K
TR8
TR7
R9 84K
R8 1K

LB1294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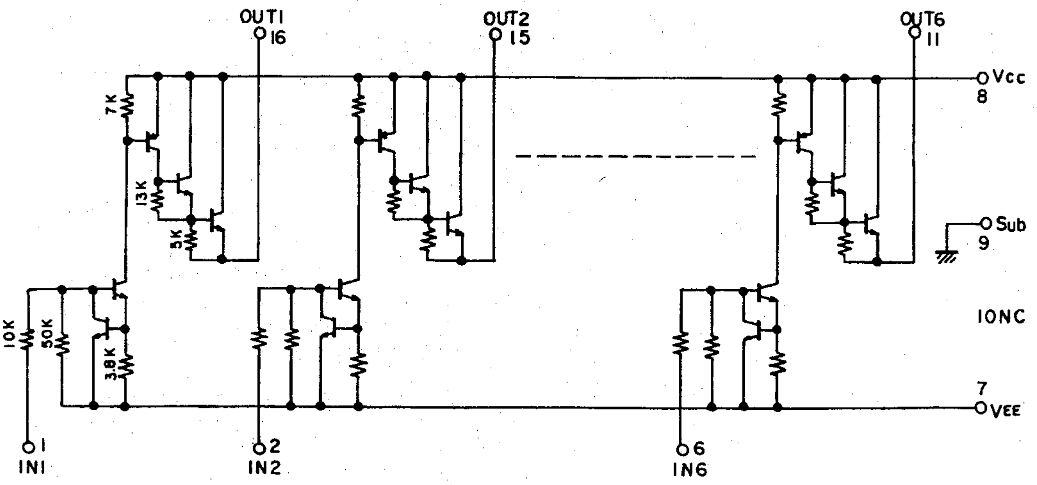
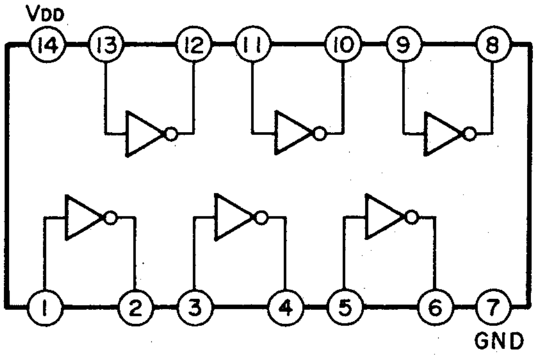
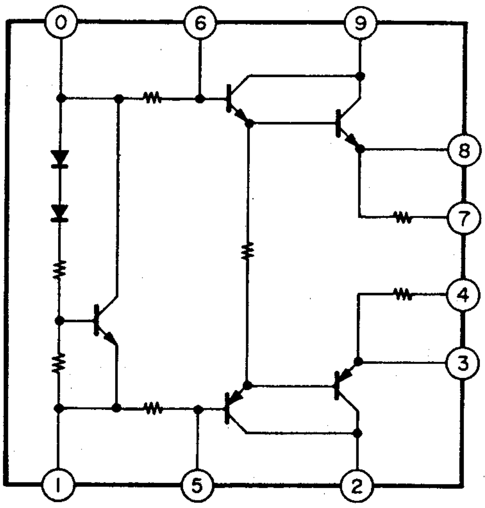
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
IN1 IN2 IN3 IN4 IN5 IN6 VEE Vcc


OUT1 16
OUT2 15
OUT6 11
Vcc 8
Sub 9
10NC
7 VEE
7K
13K
5K
10K
50K
3.8K
1 IN1
2 IN2
6 IN6

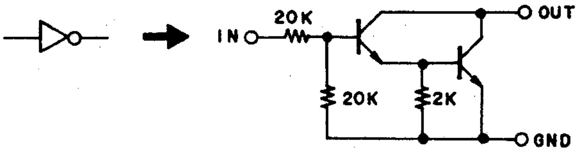
LC4069UB

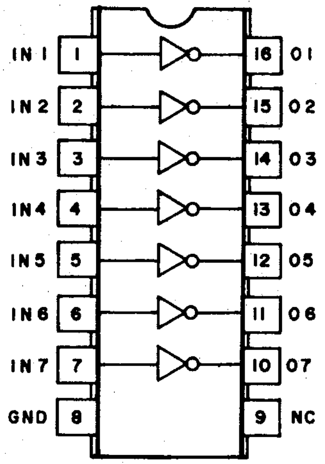

VDD
14
13
12
11
10
9
8
1
2
3
4
5
6
7
GND

STK-1050/1070

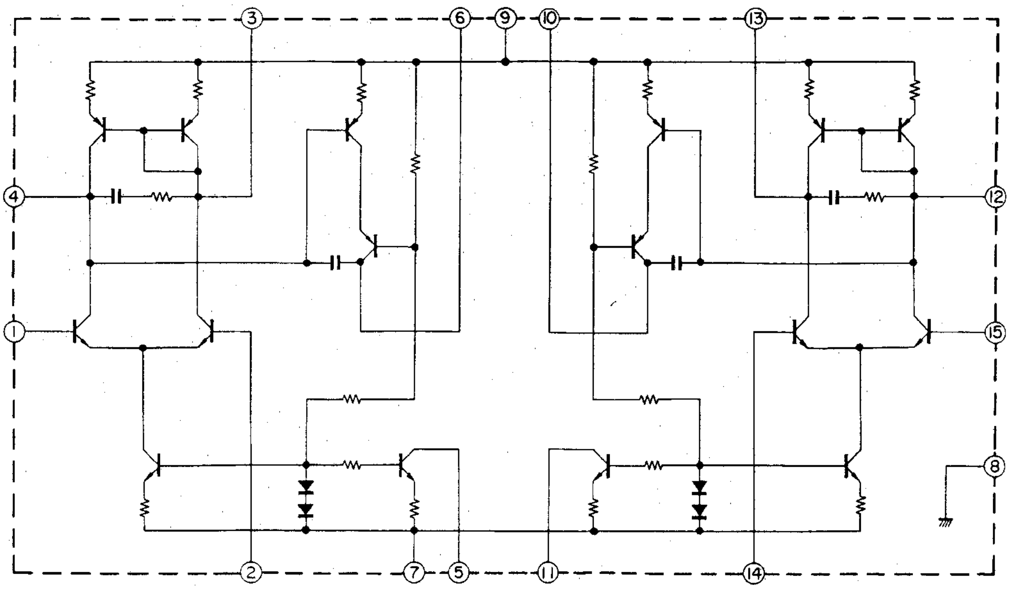

0
6
9
8
7
4
3
1
5
2

M54519P

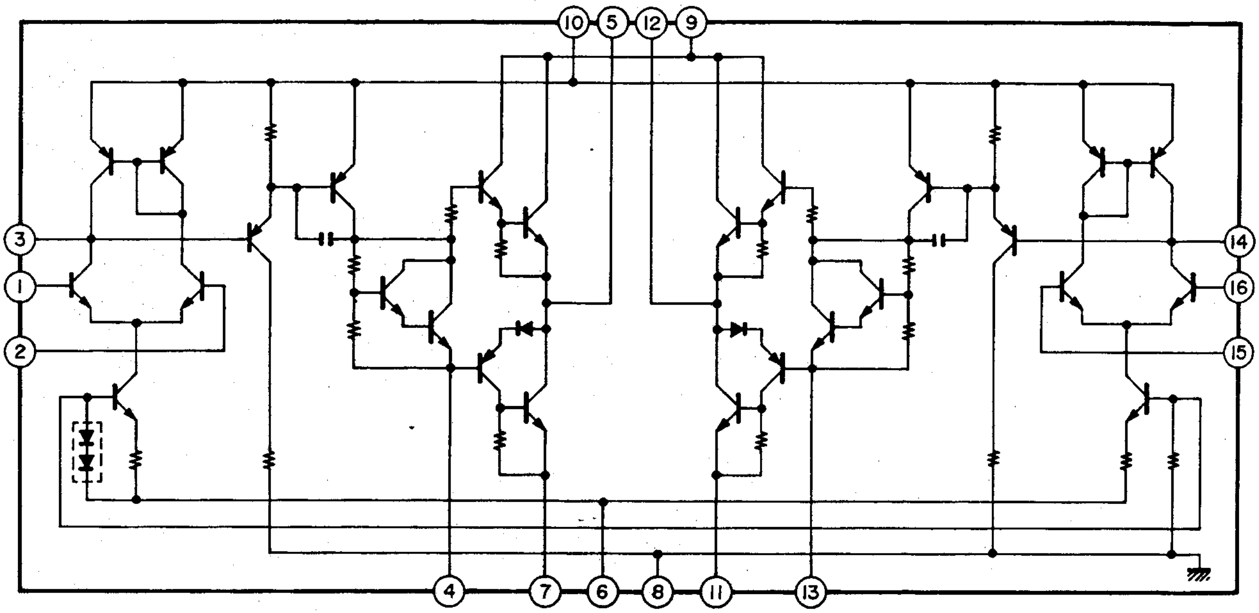

IN
20K
20K
2K
OUT
GND


IN 1
IN 2
IN 3
IN 4
IN 5
IN 6
IN 7
GND
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
O 1
O 2
O 3
O 4
O 5
O 6
O 7
NC

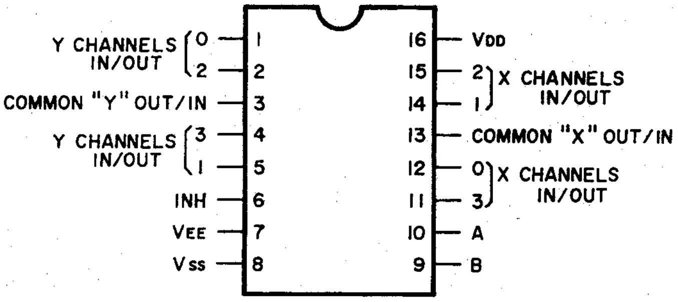
STK-3042/3062


3
6
9
10
13
4
12
1
15
8
2
7
5
11
14

STK-4833

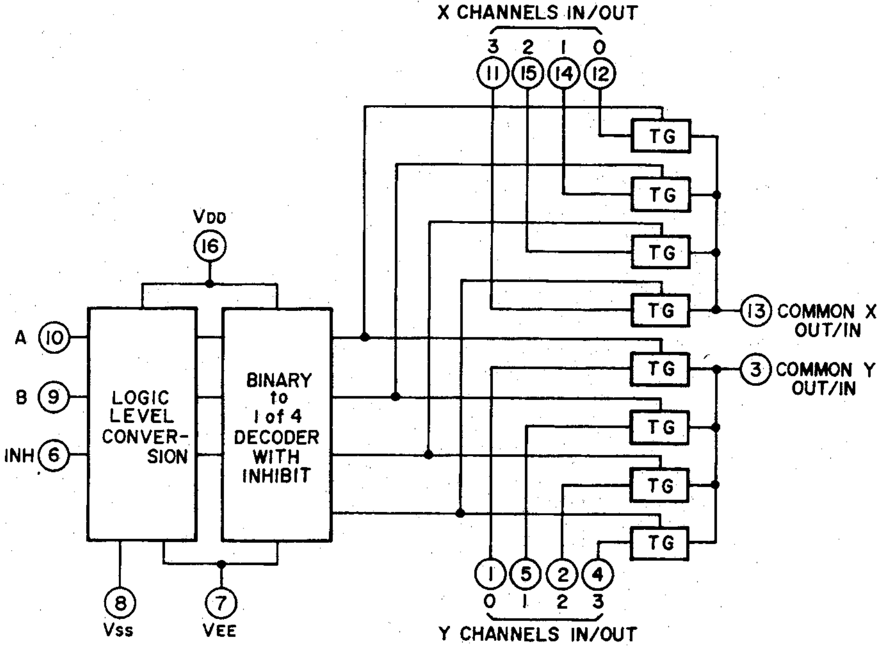

10
5
12
9
3
1
2
14
16
15
4
7
6
8
11
13

TC4052BP

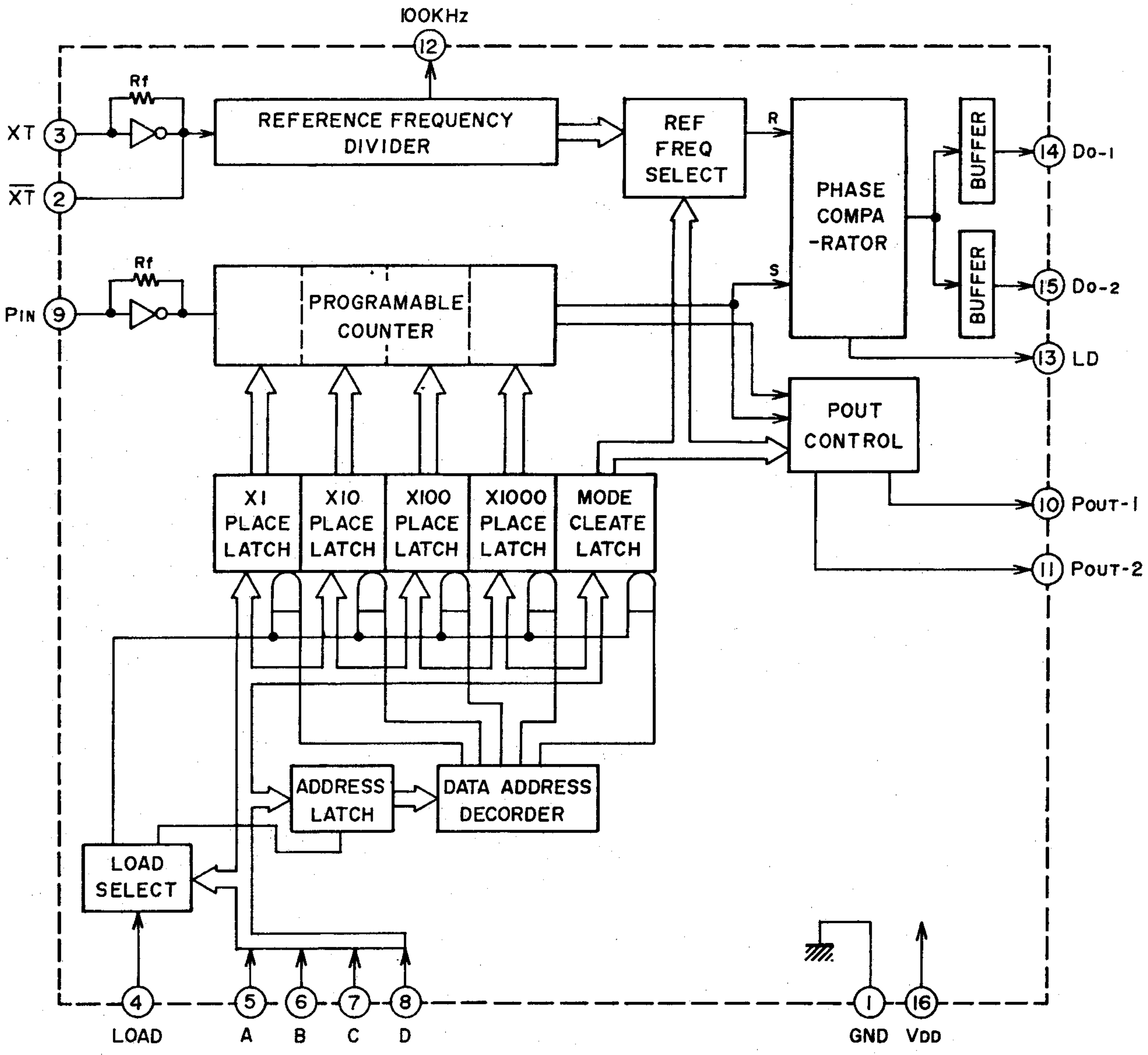

Y CHANNELS IN/OUT
0
2
COMMON "Y" OUT/IN
Y CHANNELS IN/OUT
3
1
INH
VEE
Vss
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
VDD
2
1
X CHANNELS IN/OUT
COMMON "X" OUT/IN
0
3
X CHANNELS IN/OUT
A
B

INHIBIT ⑥	A ⑩	B ⑨	"ON" CHANNEL
L	L	L	0X ,0Y
L	H	L	1X,1Y
L	L	H	2X,2Y
L	H	H	3X,3Y
H	X	X	NONE

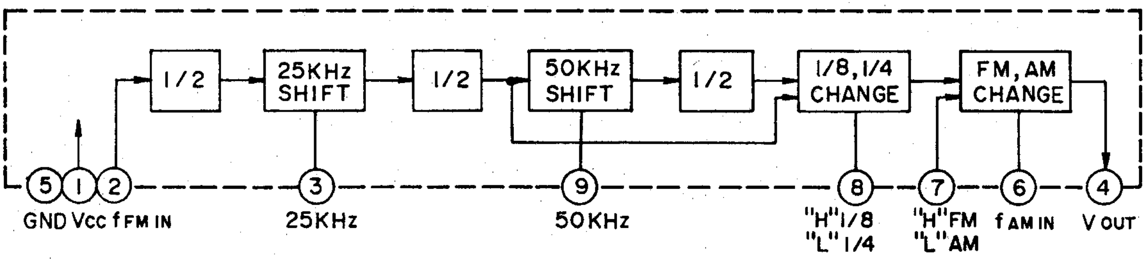
X=DON'T CARE

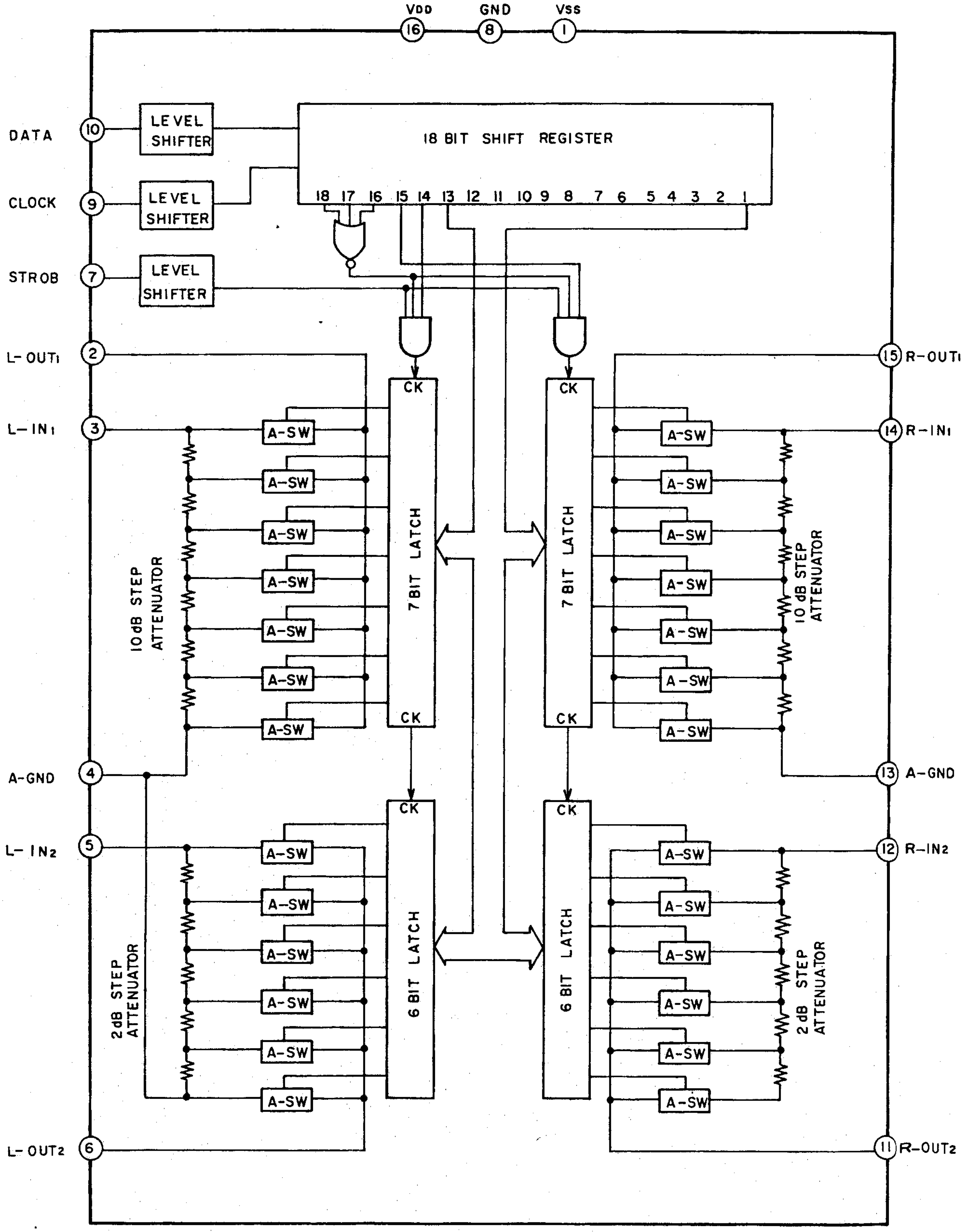

X CHANNELS IN/OUT
3
2
1
0
11
15
14
12
VDD
16
A
10
B
9
INH
6
LOGIC LEVEL CONVERSION
BINARY to 1 of 4 DECODER WITH INHIBIT
TG
13 COMMON X OUT/IN
3 COMMON Y OUT/IN
8
Vss
7
VEE
1
5
2
4
0
1
2
3
Y CHANNELS IN/OUT

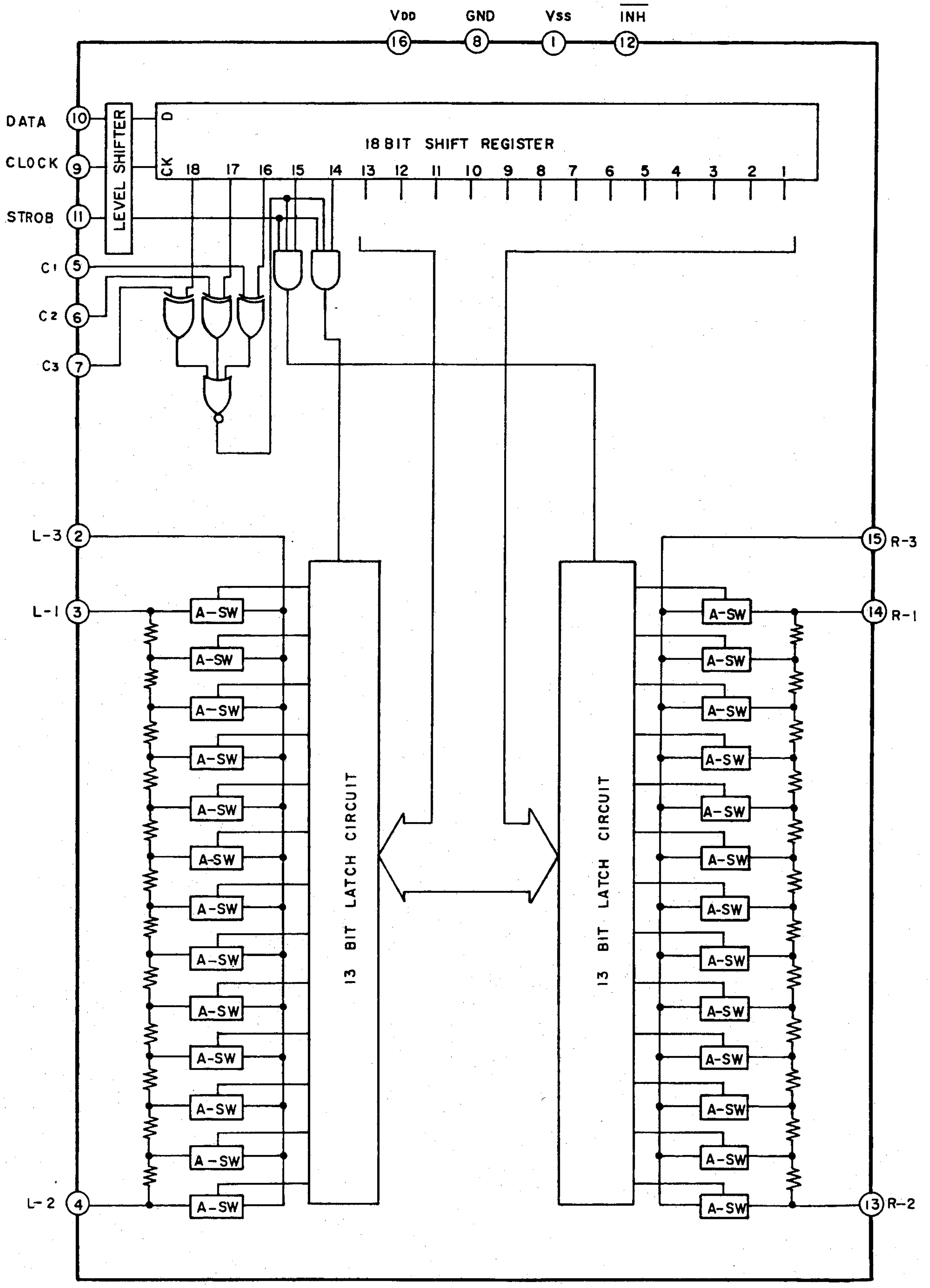
TC9125BP

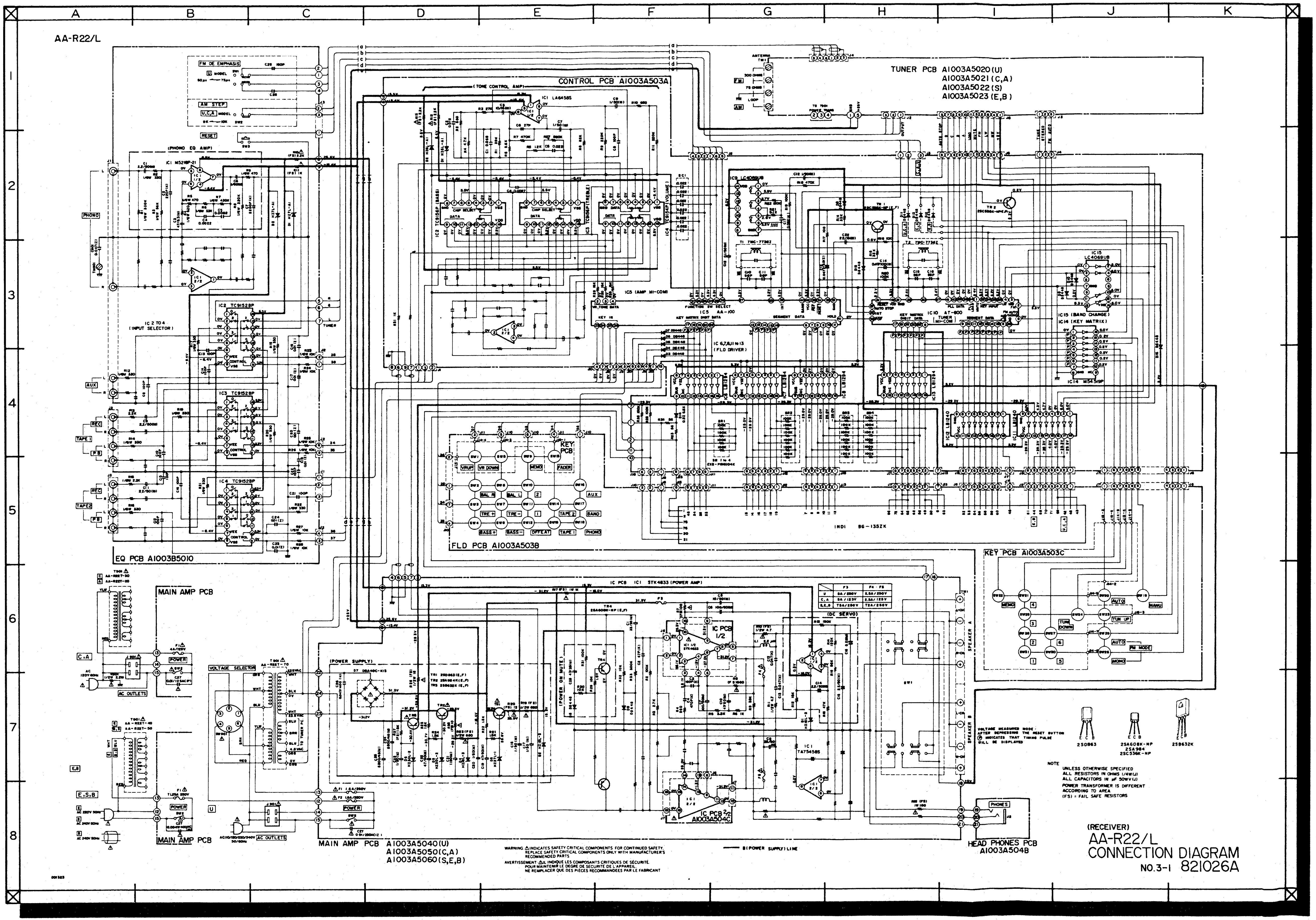

100KHz
12
Rf
XT
3
XT
2
REFERENCE FREQUENCY DIVIDER
REF FREQ SELECT
R
PHASE COMPA -RATOR
BUFFER
14
Do-1
BUFFER
15
Do-2
Rf
PIN
9
PROGRAMABLE COUNTER
S
13
LD
POUT CONTROL
X1 PLACE LATCH
X10 PLACE LATCH
X100 PLACE LATCH
X1000 PLACE LATCH
MODE CLEATE LATCH
10
POUT-1
11
POUT-2
ADDRESS LATCH
DATA ADDRESS DECORDER
LOAD SELECT
4
LOAD
5
A
6
B
7
C
8
D
1
GND
16
VDD

TD6102P


1/2
25KHz SHIFT
1/2
50KHz SHIFT
1/2
1/8, 1/4 CHANGE
FM, AM CHANGE
5
1
2
GND Vcc fFM IN
3
25KHz
9
50KHz
8
"H" 1/8
"L" 1/4
7
"H" FM
"L" AM
6
fAM IN
4
V OUT


VDD
GND
VSS
16
8
1
DATA
10
CLOCK
9
STROB
7
LEVEL SHIFTER
LEVEL SHIFTER
LEVEL SHIFTER
18 BIT SHIFT REGISTER
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
L-OUT1
2
L-IN1
3
A-GND
4
L-IN2
5
L-OUT2
6
R-OUT1
15
R-IN1
14
A-GND
13
R-IN2
12
R-OUT2
11
CK
7 BIT LATCH
6 BIT LATCH
A-SW
10dB STEP ATTENUATOR
2dB STEP ATTENUATOR


VDD
GND
VSS
INH
16
8
1
12
DATA
CLOCK
STROB
C1
C2
C3
10
9
11
5
6
7
LEVEL SHIFTER
D
CK
18 BIT SHIFT REGISTER
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
L-3
L-1
L-2
2
3
4
R-3
R-1
R-2
15
14
13
A-SW
13 BIT LATCH CIRCUIT
13 BIT LATCH CIRCUIT


AA-R22/L
TUNER PCB A1003A5020(U)
A1003A5021(C,A)
A1003A5022(S)
A1003A5023(E,B)
CONTROL PCB A1003A503A
(TONE CONTROL AMP)
(PHONO EQ AMP)
PHONO
AUX
TAPE 1
TAPE2
REC
PB
IC 2 TO 4 (INPUT SELECTOR)
EQ PCB A1003B5010
FLD PCB A1003A503B
KEY PCB
KEY PCB A1003A503C
MAIN AMP PCB
VOLTAGE SELECTOR
(POWER SUPPLY)
(DC SERVO)
IC PCB 1/2
IC PCB 2/2
A1003A504C
AC OUTLETS
SPEAKER A
SPEAKER B
PHONES
INDI BG-135ZK
2SD863
2SA608K-NP
2SA984
2SC536K-NP
2SB632K

MAIN AMP PCB A1003A5040(U)
A1003A5050(C,A)
A1003A5060(S,E,B)

WARNING: △INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: △IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL. NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

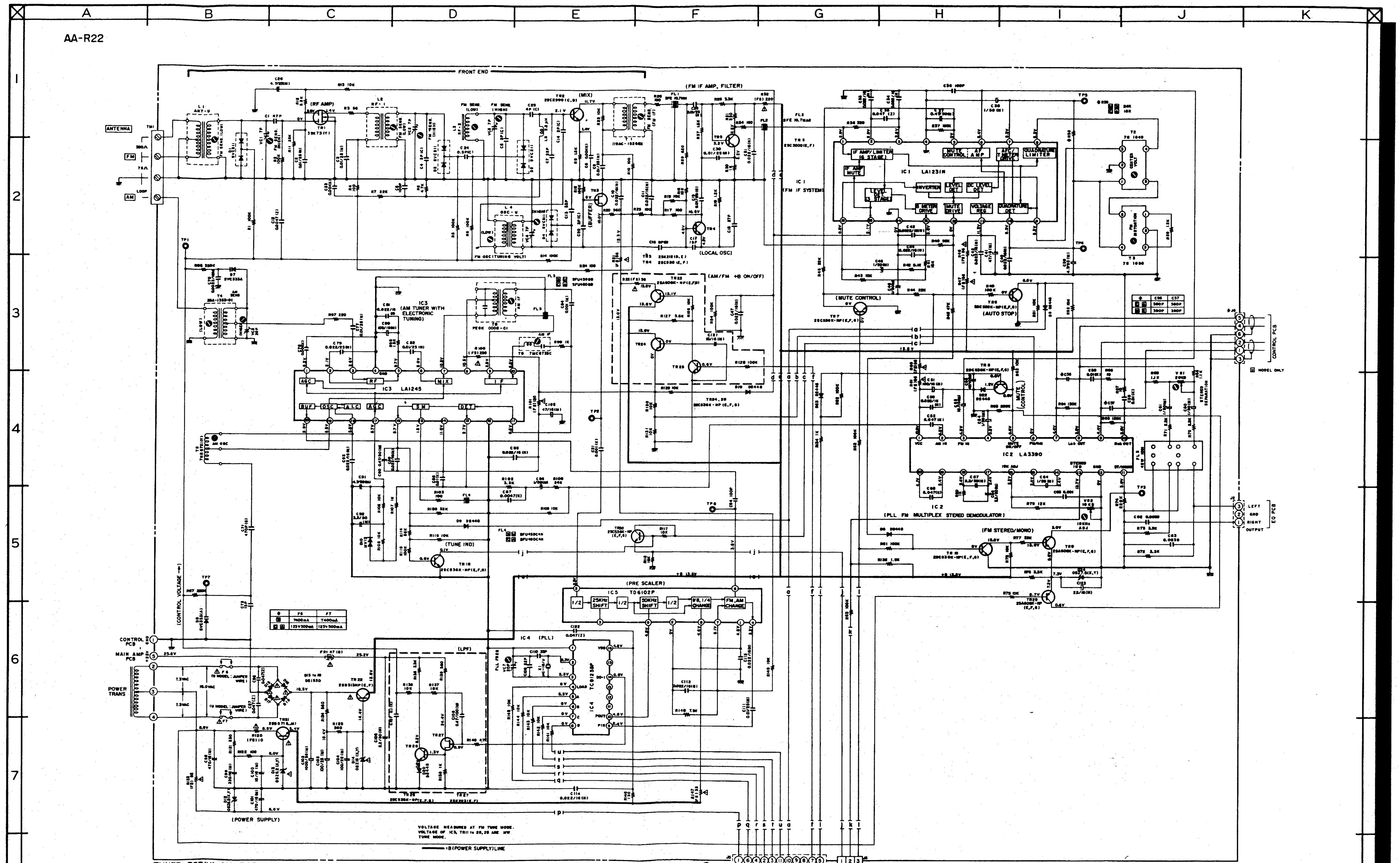
—— B(POWER SUPPLY) LINE

HEAD PHONES PCB
A1003A504B

VOLTAGE MEASURED MODE: AFTER DEPRESSING THE RESET BUTTON ⓟ INDICATES THAT TIMING PULSE WILL BE DISPLAYED

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA
(FS) = FAIL SAFE RESISTORS

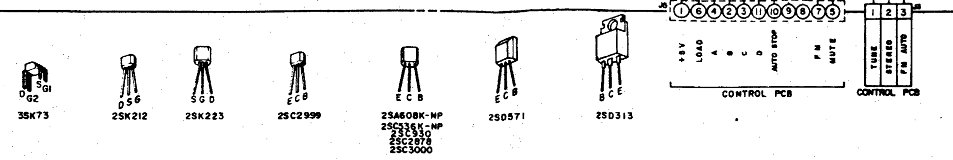
(RECEIVER)
AA-R22/L
CONNECTION DIAGRAM
NO.3-1 821026A


A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
AA-R22
FRONT END
(FM IF AMP, FILTER)
(RF AMP)
(MIX)
(BUFFER)
(LOCAL OSC)
ANTENNA
FM
AM
IC1 LA1231N
(FM IF SYSTEM)
IC3 (AM TUNER WITH ELECTRONIC TUNING)
IC3 LA1245
(AM/FM +B ON/OFF)
(MUTE CONTROL)
(AUTO STOP)
IC2 LA3390
(PLL FM MULTIPLEX STEREO DEMODULATOR)
(FM STEREO/MONO)
(TUNE IND)
(CONTROL VOLTAGE →)
(PRE SCALER)
IC5 TD6102P
IC4 (PLL)
(LPF)
(POWER SUPPLY)
CONTROL PCB
MAIN AMP PCB
POWER TRANS
EQ PCB
LEFT
GND
RIGHT
OUTPUT
CONTROL PCB
CONTROL PCB

VOLTAGE MEASURED AT FM TUNE MODE.
VOLTAGE OF IC3, TR11 to 20, 28 ARE MW TUNE MODE.

━━ =B(POWER SUPPLY)LINE

TUNER PCB(U) AI003A5020
(A,C) AI003A5021
(S) AI003A5022


D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571
B C E
2SD313

WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

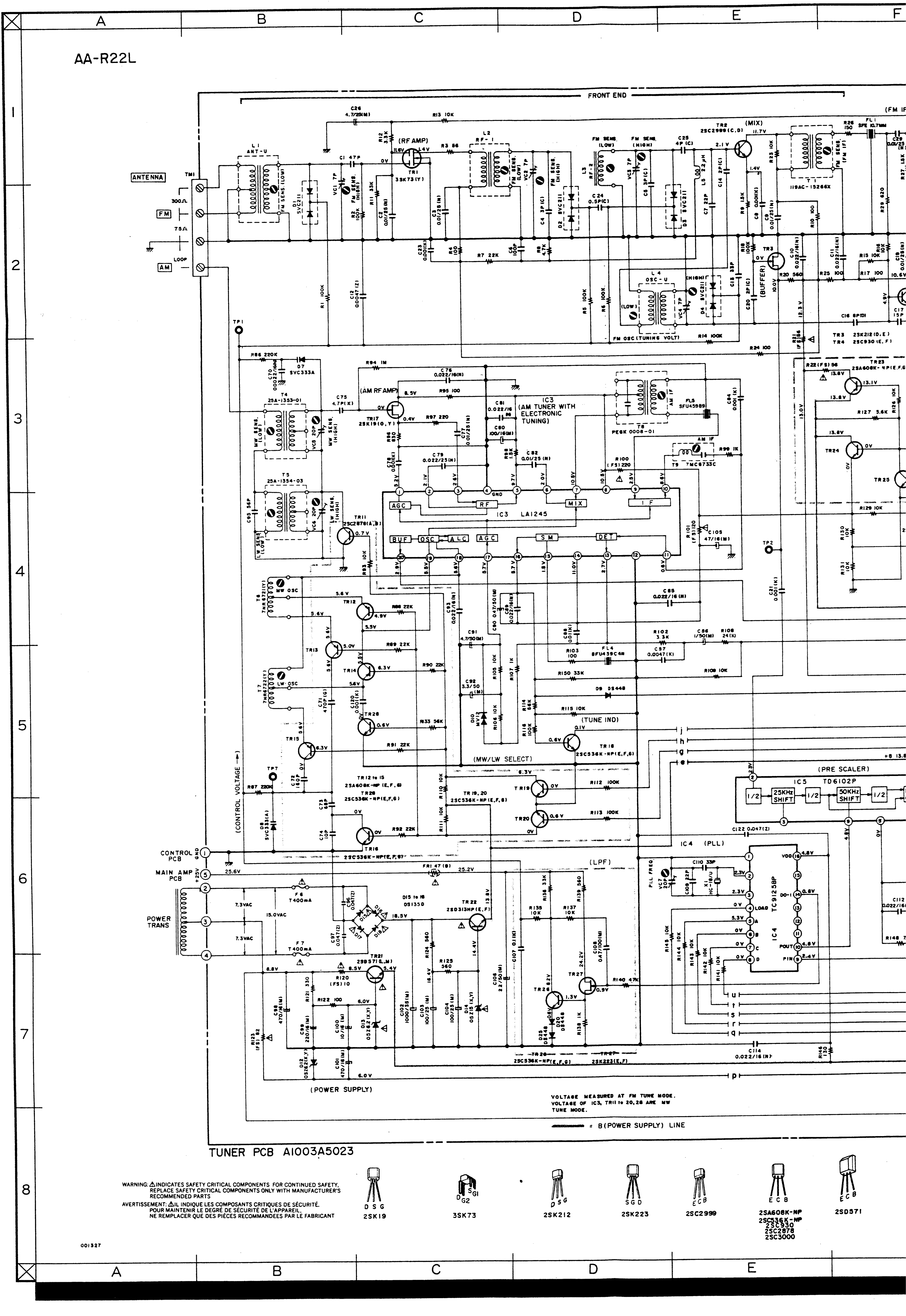
AVERTISSEMENT: △ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ POUR MAINTENIR LE DEGRÉ DE SECURITÉ DE L'APPAREIL. NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

001324

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

(RECEIVER)
AA-R22 TUNER SCHEMATIC DIAGRAM
NO. 3-2 821027A

AA-R22L


A
B
C
D
E
F
1
2
3
4
5
6
7
8
FRONT END
(FM IF
ANTENNA
TM1
300Ω
FM
75Ω
LOOP
AM
L1 ANT-U
FM SENS (LOW)
D1 SVC211
C1 47P
VC1 7P
FM SENS. (HIGH)
R11 33K
C2 0.01/25(M)
R1 100K
C12 0.0047(Z)
C26 4.7/25(M)
R12 3.3K
(RF AMP)
11.6V
1.4V
0V
TR1 3SK73(Y)
R3 86
R13 10K
L2 RF-1
FM SENS. (LOW)
VC2 7P
FM SENS. (HIGH)
C3 0.01/25(M)
C23 0.001(K)
R4 100
R7 22K
C6 10P
R8 4.7K
C4 3P(C)
D2 SVC211
L3 RF-2
FM SENS. (LOW)
FM SENS. (HIGH)
C24 0.5P(C)
VC3 7P
C5 3P(C)
C25 4P(C)
L5 0.22μH
D3 SVC211
C7 22P
C14 2P(C)
TR2 2SC2999(C,D)
(MIX)
2.1V
11.7V
1.4V
R9 1.5K
C8 0.001(K)
C9 0.01/25(M)
R23 10K
T1 119AC-15266X
FM SENS. (FM IF)
R10 100
R29 820
R26 150
FL1 SFE 10.7MM
C29 0.01/25
R27 1.5K
R5 100K
R6 100K
L4 OSC-U
(LOW)
(HIGH)
VC4 7P
D4 SVC211
C18 33P
C20 2P(C)
R18 100K
0V
TR3
(BUFFER)
10.0V
R20 560
C10 0.022/16(M)
C11 0.022/16(M)
R25 100
R15 10K
R16 10K
R17 100
C19 0.01/25
10.6V
4.9V
C17 15P
C16 8P(D)
12.3V
FM OSC (TUNING VOLT)
R14 100K
R24 100
R21 IF(FS)56
TR3 2SK212(D,E)
TR4 2SC930(E,F)
TP1
R86 220K
C70 0.0022/50(M)
D7 SVC333A
T4 2SA-1353-01
MW SENS. (LOW)
VC5 20P
MW SENS. (HIGH)
C75 4.7P(K)
R94 1M
(AM RF AMP)
8.5V
0V
0.4V
TR17 2SK19(O,Y)
R96 820
C78 0.0068(K)
C76 0.022/16(M)
R95 100
R97 220
C77 0.01/20(M)
C79 0.022/25(M)
C81 0.022/16
C80 100/16(M)
R98 1.5K
C82 0.01/25(M)
IC3 (AM TUNER WITH ELECTRONIC TUNING)
FL5 SFU450B
T8 PEGK 0006-01
AM IF
C84 0.001(K)
R100 (FS)220
T9 7MC6733C
R99 1K
T5 2SA-1354-03
C95 56P
LW SENS. (LOW)
VC6 20P
LW SENS. (HIGH)
TR11 2SC2878(A,B)
0.7V
3.2V
2.1V
2.6V
GND
9.7V
2.0V
10.8V
10.8V
2.8V
8.8V
AGC
RF
MIX
IF
IC3 LA1245
BUF
OSC
ALC
AGC
SM
DET
2.9V
8.8V
8.6V
8.7V
8.7V
1.8V
11.0V
2.7V
0.6V
R101 (FS)120
C105 47/16(M)
TP2
C21 0.001(K)
R83 10K
T6 THR6721(Y)
MW OSC
5.6V
TR12
4.9V
R88 22K
5.5V
TR13
5.0V
R89 22K
C93 0.022/16(M)
C91 4.7/50(M)
C90 0.47/50(M)
C89 0.022/16(M)
C88 0.01(K)
C85 0.022/16(M)
R102 3.3K
C86 1/50(M)
R106 24(K)
T7 THR6722(Y)
LW OSC
TR14
6.3V
R90 22K
C71 470P(G)
C120 0.001(K)
TR26
0.6V
R133 56K
R103 100
FL4 SFU450C4H
C87 0.0047(K)
R108 10K
R105 10K
R107 1K
R150 33K
C92 3.3/50(M)
D9 DS448
R114 68K
R115 10K
D10 MV12
R109 10K
R116 100K
(TUNE IND)
0.1V
0.6V
TR18 2SC536K-NP(E,F,G)
TR15
6.3V
R91 22K
(MW/LW SELECT)
(CONTROL VOLTAGE)
TP7
R87 220K
C72 150P
D8 SVC333A
TR12 to 15 2SA608K-NP(E,F,G)
TR26 2SC536K-NP(E,F,G)
C73 68P
C74 10P
TR16
0V
R92 22K
2SC536K-NP(E,F,G)
R110 10K
R111 10K
TR19, 20 2SC536K-NP(E,F,G)
6.3V
TR19
0V
R112 100K
TR20
0.6V
R113 100K
j
h
g
e
+B 13.6
(PRE SCALER)
IC5 TD6102P
1/2
25KHz SHIFT
1/2
50KHz SHIFT
1/2
C122 0.047(Z)
IC4 (PLL)
CONTROL PCB
MAIN AMP PCB
+25V
GND
25.6V
FR1 47(B)
25.2V
(LPF)
POWER TRANS
7.3VAC
15.0VAC
7.3VAC
F6 T400mA
F7 T400mA
C96 0.047(Z)
C97 0.047(Z)
D15 to 18 DS135D
18.5V
TR22 2SD313HP(E,F)
13.8V
14.4V
R124 560
R125 560
C108 22/50(M)
C107 0.1(K)
R136 33K
R135 10K
R137 10K
R139 560
C109 0.47/100(M)
24.2V
TR27
0.9V
R140 4.7K
TR26
1.3V
D20 DS448
D25 DS448
R138 1K
PLL FREQ.
VC7 20P
C108 22P
C110 33P
X1 HC-18/U
TC9125BP
IC4
VDD
LOAD
POUT
PIN
4.8V
2.3V
5.3V
0V
2.4V
R145 10K
R144 10K
R143 10K
R142 10K
R141 10K
u
t
s
r
q
C114 0.022/16(M)
R146
p
C112 0.022/16
R148
6.8V
TR21 2SB571(L,M)
8.5V
5.4V
R120 (FS)10
R121 330
R122 100
6.0V
C98 470/16(M)
C99 220/16(M)
C100 10/16(M)
D13 0S2(X,Y)
R123 (FS)82
D12 0S2(X,Y)
C101 470/16(M)
6.0V
C102 1000/35(M)
C103 100/25(M)
C104 100/25(M)
D14 0S215(X,Y)
16.4V
TR26 2SC536K-NP(E,F,G)
TR27 2SK223(E,F)
(POWER SUPPLY)
TUNER PCB A1003A5023
D S G
2SK19
D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571

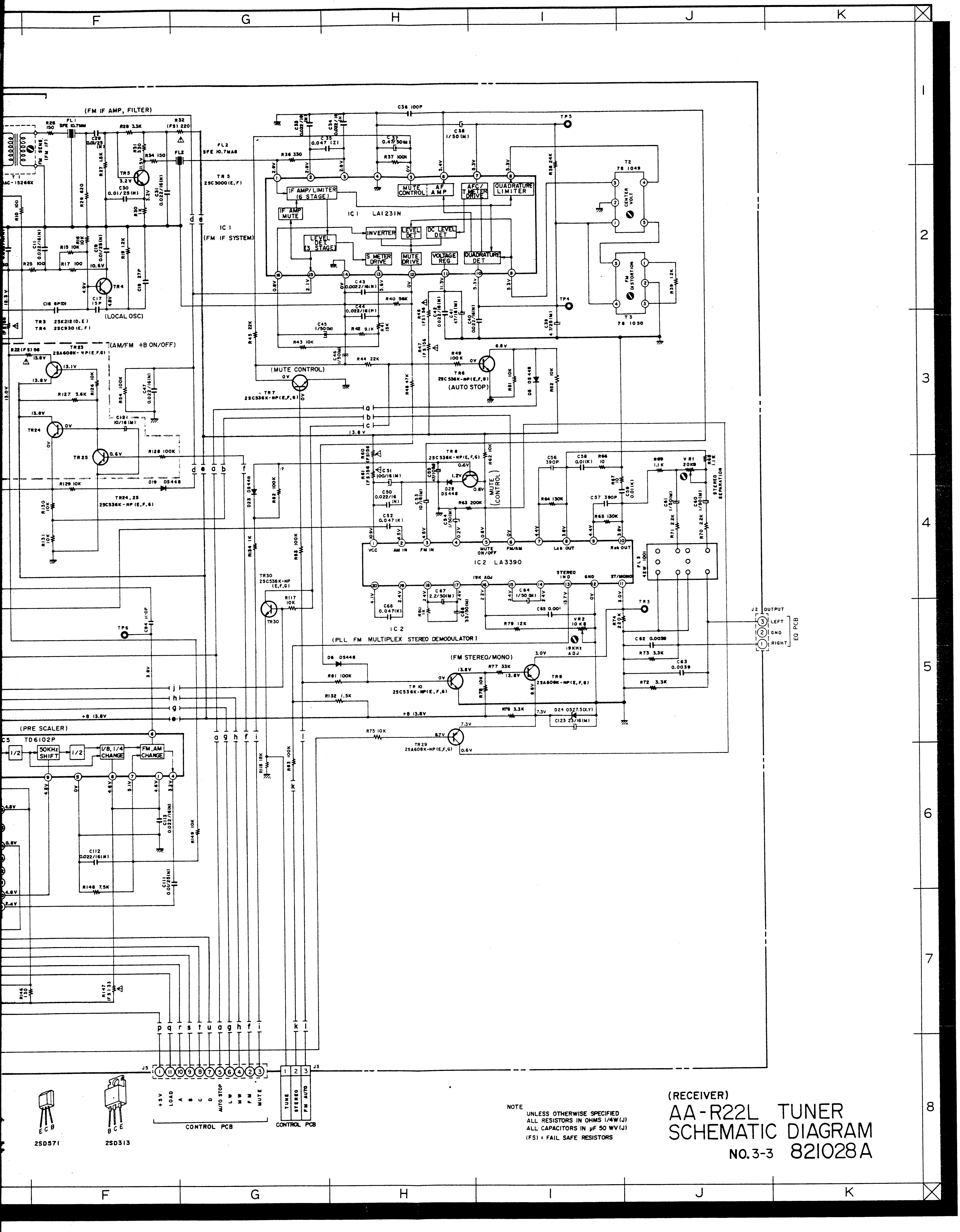
VOLTAGE MEASURED AT FM TUNE MODE.
VOLTAGE OF IC3, TR11 to 20,26 ARE MW TUNE MODE.

▬▬ = B(POWER SUPPLY) LINE

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

001327

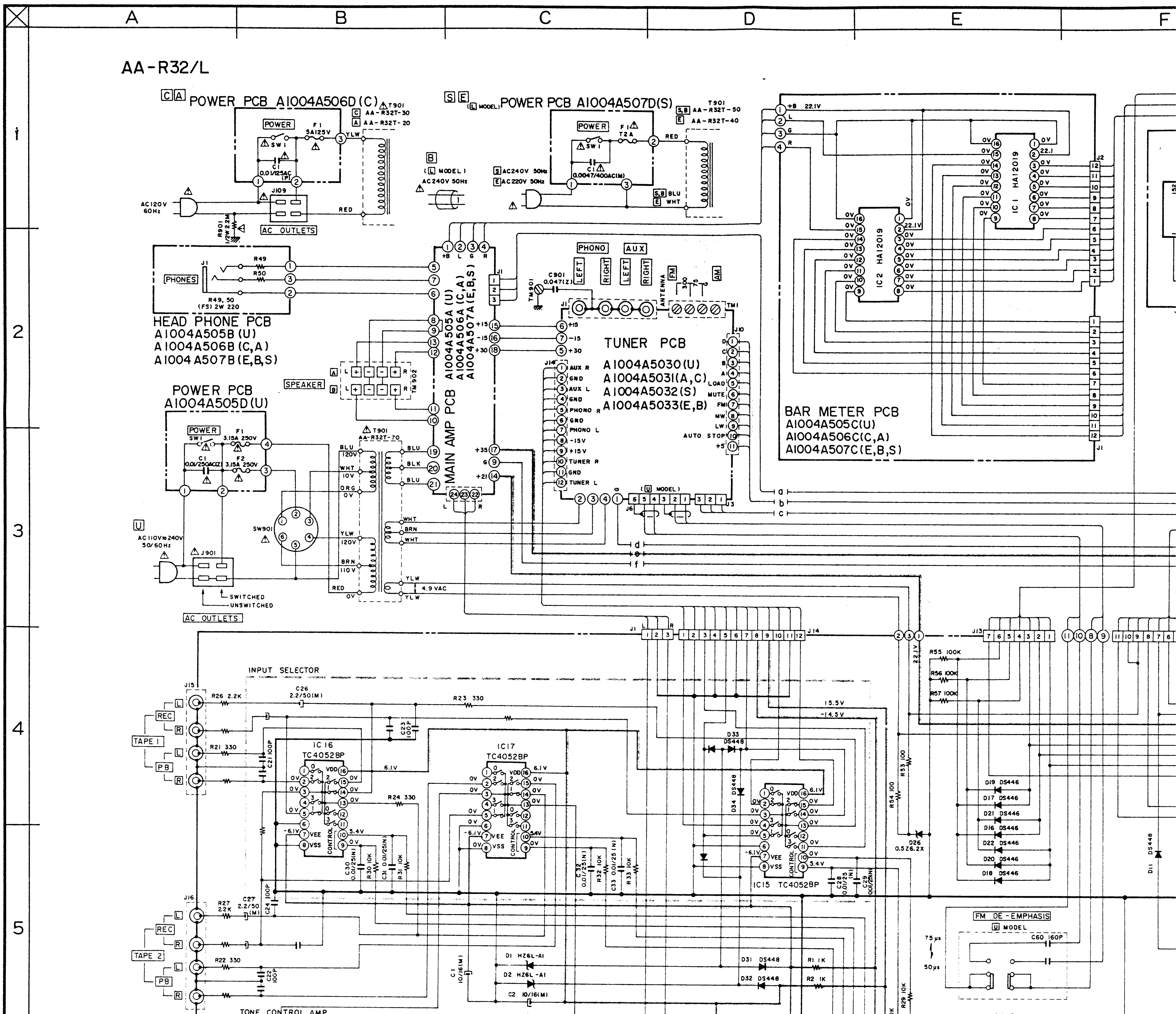

F
G
H
I
J
K
1
2
3
4
5
6
7
8
(FM IF AMP, FILTER)
FL1 SFE 10.7MA
FL2 SFE 10.7MA8
TR5 2SC3000(E,F)
IC 1 (FM IF SYSTEM)
T1 AC-15266X
FM SENS (FM IF)
TR3 2SK212(D,E)
TR4 2SC930(E,F)
(LOCAL OSC)
(AM/FM +B ON/OFF)
TR23 2SA608K-NP(E,F,G)
TR24, 25 2SC536K-NP(E,F,G)
D19 DS448
IF AMP/LIMITER (6 STAGE)
IF AMP MUTE
IC1 LA1231N
MUTE CONTROL
AF AMP
AFC/ T METER DRIVE
QUADRATURE LIMITER
INVERTER
LEVEL DET
DC LEVEL DET
LEVEL DET (3 STAGE)
S METER DRIVE
MUTE DRIVE
VOLTAGE REG
QUADRATURE DET
C36 100P
TP5
TP4
T2 78 1049
CENTER VOLT
T3 78 1050
FM DISTORTION
(MUTE CONTROL)
TR7 2SC536K-NP(E,F,G)
TR6 2SC536K-NP(E,F,G)
(AUTO STOP)
TR8 2SC536K-NP(E,F,G)
MUTE (CONTROL)
IC2 LA3390
VCC
AM IN
FM IN
MUTE ON/OFF
FM/AM
Lch OUT
Rch OUT
19K ADJ
STEREO IND
GND
ST/MONO
STEREO SEPARATION
VR1 20KB
VR2 10KB
19KHz ADJ
FL3
IC 2
(PLL FM MULTIPLEX STEREO DEMODULATOR)
TP3
J2 OUTPUT
LEFT
GND
RIGHT
EQ PCB
TR30 2SC536K-NP (E,F,G)
TP6
(FM STEREO/MONO)
TR10 2SC536K-NP(E,F,G)
TR9 2SA608K-NP(E,F,G)
TR29 2SA608K-NP(E,F,G)
D6 DS446
+B 13.8V
(PRE SCALER)
TD6102P
1/2
50KHz SHIFT
1/8, 1/4 CHANGE
FM, AM CHANGE
J5
+5V
LOAD
A
B
C
D
AUTO STOP
LW
MW
FM
MUTE
CONTROL PCB
J3
TUNE
STEREO
FM AUTO
CONTROL PCB
ECB
2SD571
BCE
2SD313

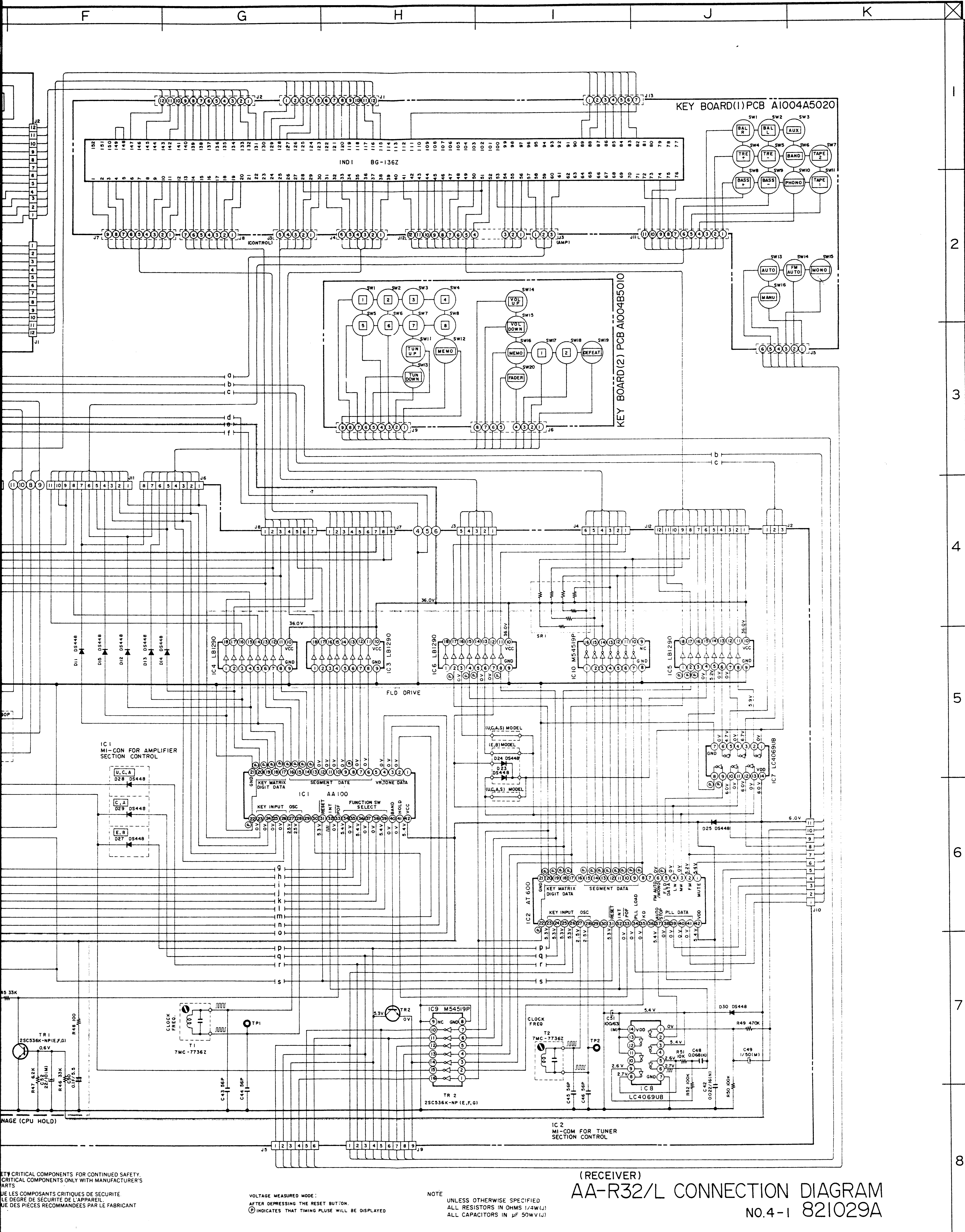
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

(RECEIVER)

AA-R22L TUNER SCHEMATIC DIAGRAM

NO.3-3 821028A


AA-R32/L
POWER PCB A1004A506D(C)
POWER PCB A1004A507D(S)
HEAD PHONE PCB
A1004A505B(U)
A1004A506B(C,A)
A1004A507B(E,B,S)
POWER PCB
A1004A505D(U)
MAIN AMP PCB
A1004A505A(U)
A1004A506A(C,A)
A1004A507A(E,B,S)
TUNER PCB
A1004A5030(U)
A1004A5031(A,C)
A1004A5032(S)
A1004A5033(E,B)
BAR METER PCB
A1004A505C(U)
A1004A506C(C,A)
A1004A507C(E,B,S)
IC1 HA12019
IC2 HA12019
AC OUTLETS
PHONES
SPEAKER
PHONO
AUX
INPUT SELECTOR
IC16 TC4052BP
IC17 TC4052BP
IC15 TC4052BP
TAPE 1
TAPE 2
REC
PB
TONE CONTROL AMP
IC14 LA64580
IC11 TC9154P(VOLUME)
IC12 TC9156P(TREBLE)
IC13 TC9156P (BASS)
FM DE-EMPHASIS
AM-STEP
RESET
POWER OFF MANAGE (CPU HOLD)
CONTROL PCB A1004A5040
=B (POWER SUPPLY)
2SC536K-NP
001325
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CO
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH
RECOMMENDED PARTS
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAR
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PA


F
G
H
I
J
K
1
2
3
4
5
6
7
8
KEY BOARD(1)PCB A1004A5020
BAL R
BAL L
AUX
TRE +
TRE -
BAND
TAPE 2
BASS +
BASS -
PHONO
TAPE 1
SW13
SW14
SW15
AUTO
FM AUTO
MONO
MANU
KEY BOARD(2) PCB A1004B5010
VOL UP
VOL DOWN
MEMO
DEFEAT
FADER
TUN UP
TUN DOWN
IND1 BG-136Z
J1
J2
J3 (AMP)
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J31 (CONTROL)
IC4 LB1290
IC3 LB1290
IC6 LB1290
IC10 M54519P
IC5 LB1290
SR1
36.0V
FLD DRIVE
IC1 MI-CON FOR AMPLIFIER SECTION CONTROL
IC1 AA100
KEY MATRIX DIGIT DATA
SEGMENT DATA
VR,TONE DATA
KEY INPUT
OSC
FUNCTION SW SELECT
RESET
HOLD
VCC
(U,C,A) D28 DS448
(C,A) D29 DS448
(E,B) D27 DS448
D11 DS448
D15 DS448
D12 DS448
D13 DS448
D14 DS448
(U,C,A,S) MODEL
(E,B) MODEL
D24 DS448
D23 DS448
IC7 LC4069UB
D25 DS448
6.0V
IC2 AT600
KEY MATRIX DIGIT DATA
SEGMENT DATA
KEY INPUT
OSC
PLL LOAD
PLL DATA
MUTE
AUTO STOP
TR1 2SC536K-NP(E,F,G)
R46 100
R47 6.2K
C32 22/10(M)
R46 33K
C30 0.47/5.5
NAGE (CPU HOLD)
CLOCK FREQ.
T1 7MC-7736Z
TP1
C43 56P
C44 56P
TR2
5.3V
IC9 M54519P
TR2 2SC536K-NP(E,F,G)
CLOCK FREQ
T2 7MC-7736Z
TP2
C45 56P
C46 56P
C51 100/6.3(M)
IC8 LC4069UB
R51 10K
C48 0.068(K)
R52 100K
C42 0.022/16(N)
R50 100K
C49 1/50(M)
D30 DS448
R49 47K
IC2 MI-COM FOR TUNER SECTION CONTROL

ETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
ARTS

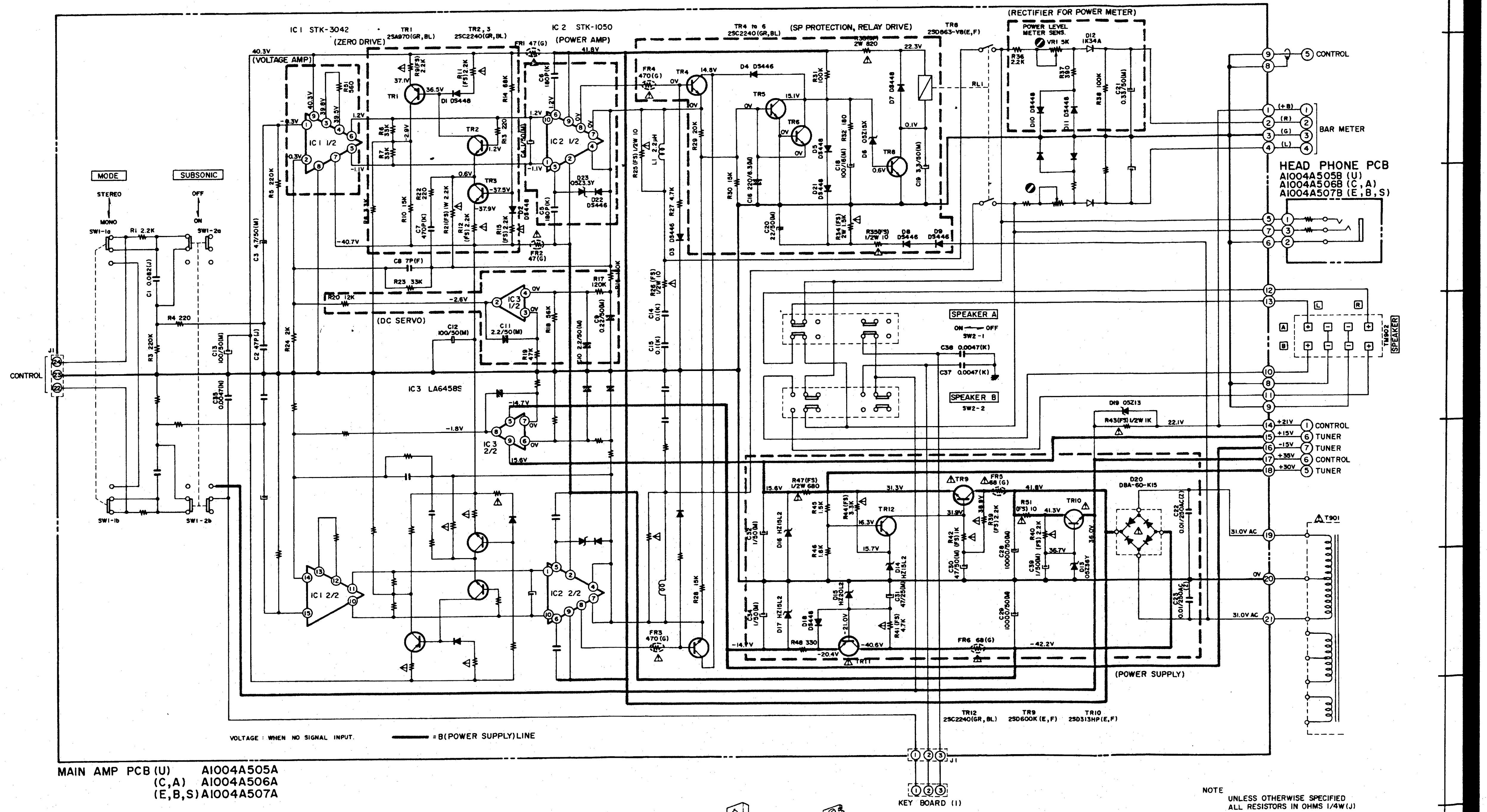
UE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
UE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

VOLTAGE MEASURED MODE:
AFTER DEPRESSING THE RESET BUTTON.
Ⓟ INDICATES THAT TIMING PLUSE WILL BE DISPLAYED

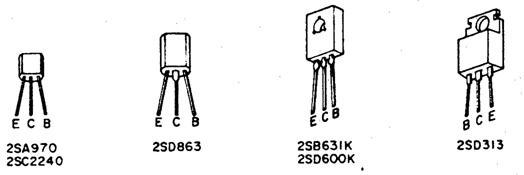
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)

(RECEIVER)
AA-R32/L CONNECTION DIAGRAM
NO.4-1 821029A

AA-R32L



IC1 STK-3042
TR1 2SA970(GR,BL)
TR2,3 2SC2240(GR,BL)
(ZERO DRIVE)
IC2 STK-1050
(POWER AMP)
(VOLTAGE AMP)
TR4 ~ 6 2SC2240(GR,BL)
(SP PROTECTION, RELAY DRIVE)
TR8 2SD863-V8(E,F)
(RECTIFIER FOR POWER METER)
POWER LEVEL METER SENS.
CONTROL
BAR METER
HEAD PHONE PCB
A1004A505B (U)
A1004A506B (C,A)
A1004A507B (E,B,S)
MODE
STEREO
MONO
SUBSONIC
OFF
ON
(DC SERVO)
IC3 LA6458S
SPEAKER A
SW2-1
SPEAKER B
SW2-2
TM902 SPEAKER
TUNER
(POWER SUPPLY)
TR12 2SC2240(GR,BL)
TR9 2SD600K(E,F)
TR10 2SD313HP(E,F)
VOLTAGE : WHEN NO SIGNAL INPUT.
= B(POWER SUPPLY) LINE
T901
KEY BOARD (1)
MAIN AMP PCB (U) A1004A505A
(C,A) A1004A506A
(E,B,S) A1004A507A



E C B
2SA970
2SC2240
E C B
2SD863
E C B
2SB631K
2SD600K
B C E
2SD313

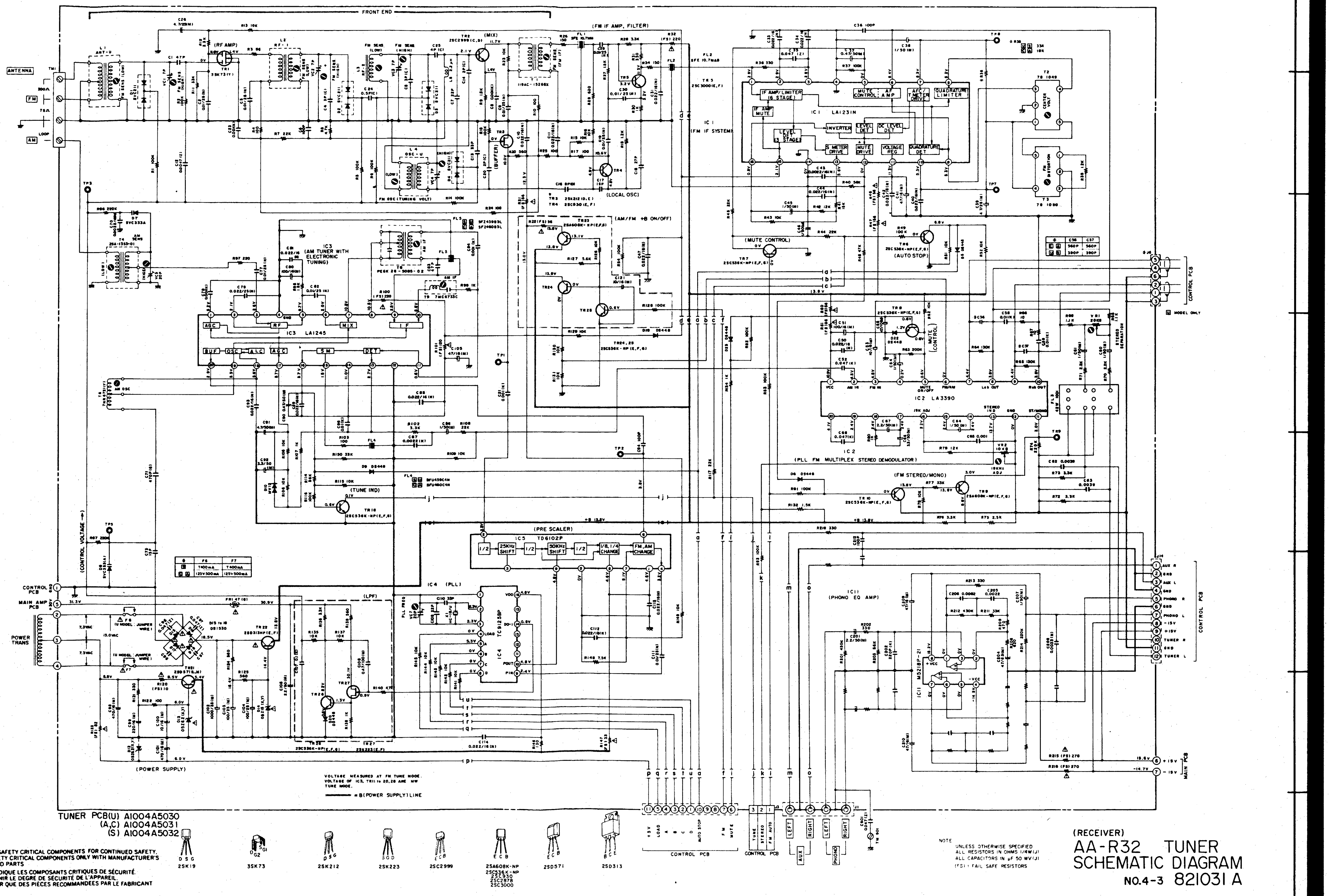
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN µF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

(RECEIVER)
AA-R32/L AMP SCHEMATIC DIAGRAM
NO.4-2 821030A

AA-R32


FRONT END
ANTENNA
FM
AM
TM1
300Ω
75Ω
LOOP
(RF AMP)
TR1 3SK73(Y)
(MIX)
TR2 2SC2999(C,D)
(FM IF AMP, FILTER)
FL1
FL2
TR3
TR4
(BUFFER)
(LOCAL OSC)
TR3, TR4 2SC930(E,F)
FM OSC (TUNING VOLT)
IC1 (FM IF SYSTEM)
IC1 LA1231N
IF AMP/LIMITER (6 STAGE)
IF AMP MUTE
MUTE CONTROL
AF AMP
AFC/T METER DRIVE
QUADRATURE LIMITER
INVERTER
LEVEL DET
DC LEVEL DET
LEVEL DET 3 STAGE
S METER DRIVE
MUTE DRIVE
VOLTAGE REG
QUADRATURE DET
T2
T3
TP1
TP2
TP3
TP5
TP6
TP7
TP8
TP9
IC3 (AM TUNER WITH ELECTRONIC TUNING)
IC3 LA1245
AGC
RF
MIX
IF
BUF
OSC
ALC
SM
DET
AM OSC
(AM/FM +B ON/OFF)
TR23 2SA608K-NP(E,F,G)
TR24, 25 2SC536K-NP(E,F,G)
(MUTE CONTROL)
TR7 2SC536K-NP(E,F,G)
(AUTO STOP)
TR6 2SC536K-NP(E,F,G)
MUTE (CONTROL)
TR8 2SC536K-NP(E,F,G)
IC2 LA3390
IC2
(PLL FM MULTIPLEX STEREO DEMODULATOR)
(FM STEREO/MONO)
TR9 2SA608K-NP(E,F,G)
TR10 2SC536K-NP(E,F,G)
(TUNE IND)
TR18 2SC536K-NP(E,F,G)
CONTROL PCB
MODEL ONLY
(PRE SCALER)
IC5 TD6102P
1/2
25KHz SHIFT
50KHz SHIFT
1/8, 1/4 CHANGE
FM, AM CHANGE
IC4 (PLL)
IC4 TC9125BP
(LPF)
TR26 2SC536K-NP(E,F,G)
TR27 2SK223(E,F)
(CONTROL VOLTAGE →)
CONTROL PCB
MAIN AMP PCB
POWER TRANS
TR21 2SD571(L,M)
TR22 2SD313H(E,F)
(POWER SUPPLY)
IC11 (PHONO EQ AMP)
IC11 M5218P-21
AUX R
AUX L
PHONO R
PHONO L
TUNER R
TUNER L
GND
+15V
-15V
15.6V
-14.7V
MAIN PCB
VOLTAGE MEASURED AT FM TUNE MODE.
VOLTAGE OF IC3, TR11 to 20,28 ARE MW TUNE MODE.
= B(POWER SUPPLY) LINE
+5V
LOAD
A
B
C
D
AUTO STOP
FM
MUTE
CONTROL PCB
TUNE
STEREO
FM AUTO
CONTROL PCB
LEFT
RIGHT
LEFT
RIGHT
AUX
PHONO
TM 901
D S G
2SK19
D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571
B C E
2SD313

TUNER PCB(U) A1004A5030
(A,C) A1004A5031
(S) A1004A5032

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

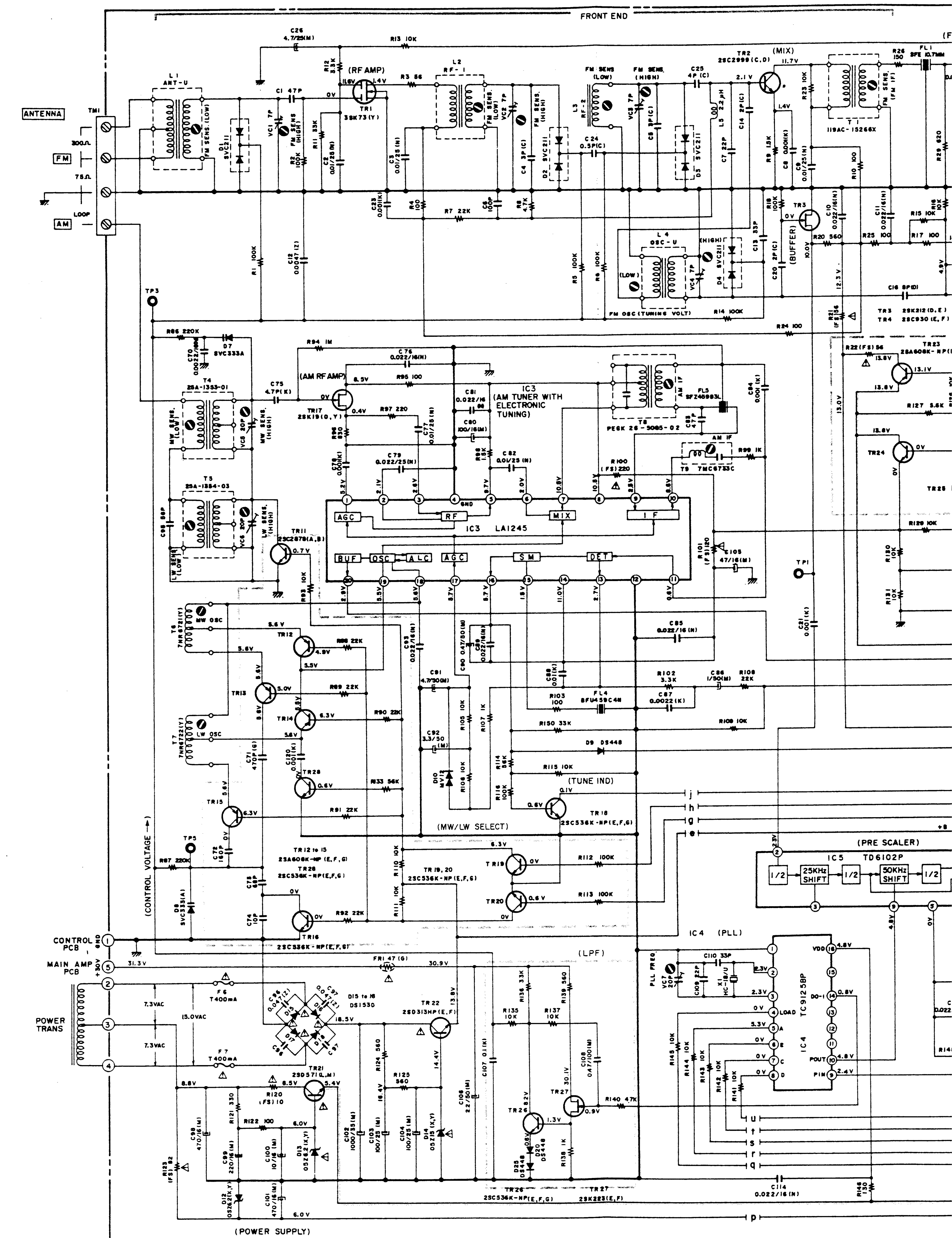
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) : FAIL SAFE RESISTORS

(RECEIVER)
AA-R32 TUNER SCHEMATIC DIAGRAM
NO.4-3 821031 A

001327

AA-R32L


FRONT END
ANTENNA
FM
AM
300Ω
75Ω
LOOP
TM1
L1 ANT-U
TR1 3SK73(Y)
(RF AMP)
L2 RF-1
L3 RF-2
TR2 2SC2999(C,D)
(MIX)
T1 119AC-15266X
FL1 SFE 10.7MM
TR3
(BUFFER)
L4 OSC-U
FM OSC (TUNING VOLT)
TR3 2SK212(D,E)
TR4 2SC930(E,F)
TP3
T4 25A-1353-01
T5 25A-1354-03
MW SENS.
LW SENS.
TR11 2SC2878(A,B)
(AM RF AMP)
TR17 2SK19(O,Y)
IC3 (AM TUNER WITH ELECTRONIC TUNING)
IC3 LA1245
AGC
RF
MIX
IF
BUF
OSC
ALC
SM
DET
T8 PEGK 26-5085-02
FL5 SFZ450BL
T9 7MC6733C
AM IF
TP1
T6 7HR672I(Y) MW OSC
T7 7HR6722(Y) LW OSC
TR12
TR13
TR14
TR15
TR28
TR16
FL4 SFU450C4B
D9 DS448
D10 MV12
(TUNE IND)
TR18 2SC536K-NP(E,F,G)
(MW/LW SELECT)
TR19
TR20
TR19, 20 2SC536K-NP(E,F,G)
TR12 to 15 2SA608K-NP(E,F,G)
TR28 2SC536K-NP(E,F,G)
TR16 2SC536K-NP(E,F,G)
(CONTROL VOLTAGE →)
TP5
D8 SVC321A
CONTROL PCB
MAIN AMP PCB
POWER TRANS
F6 T400mA
F7 T400mA
FR1 47(G)
D15 to 18 DS1530
TR22 2SD313HP(E,F)
TR21 2SD571(L,M)
D13 05Z8.2(X,Y)
D14 05Z15(X,Y)
D12 05Z6.2(X,Y)
(POWER SUPPLY)
(LPF)
TR26
TR27
TR26 2SC536K-NP(E,F,G)
TR27 2SK223(E,F)
IC4 (PLL)
IC4 TC9125BP
X1 HC-18/U
PLL FREQ.
(PRE SCALER)
IC5 TD6102P
1/2
25KHz SHIFT
50KHz SHIFT
TR23 2SA608K-NP
TR24
j
h
g
e
u
t
s
r
q
p

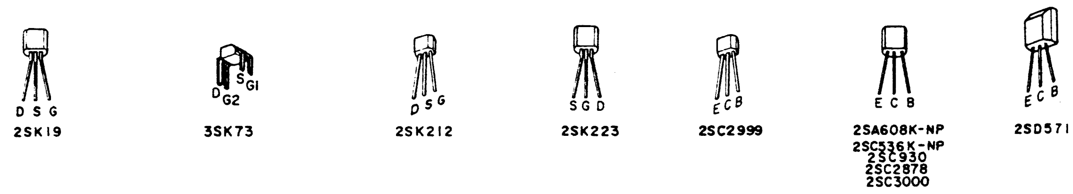
VOLTAGE MEASURED AT FM TUNE MODE.
VOLTAGE OF IC3, TR11 to 20,26 ARE MW TUNE MODE.

= B(POWER SUPPLY) LINE

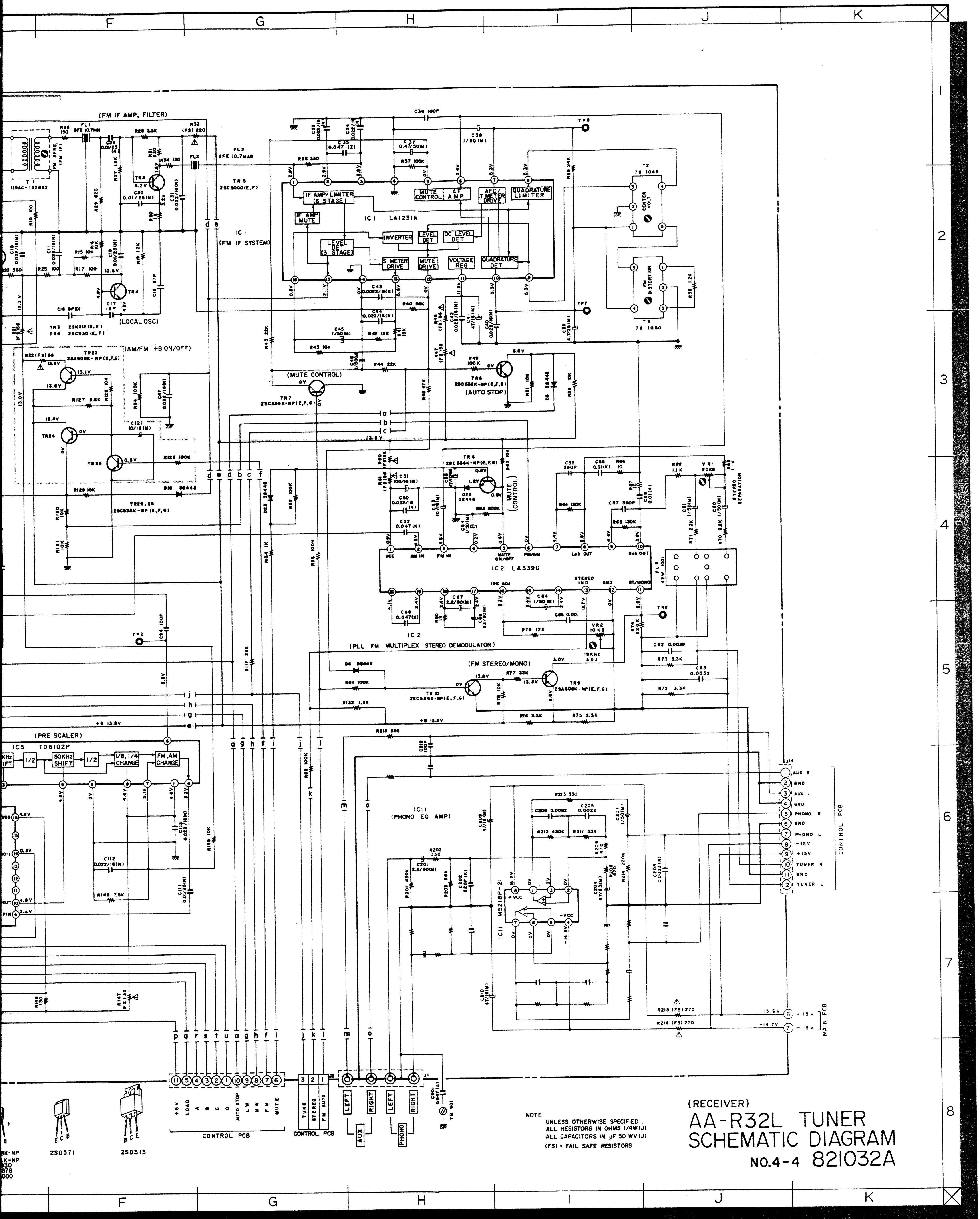
TUNER PCB A1004A5033

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

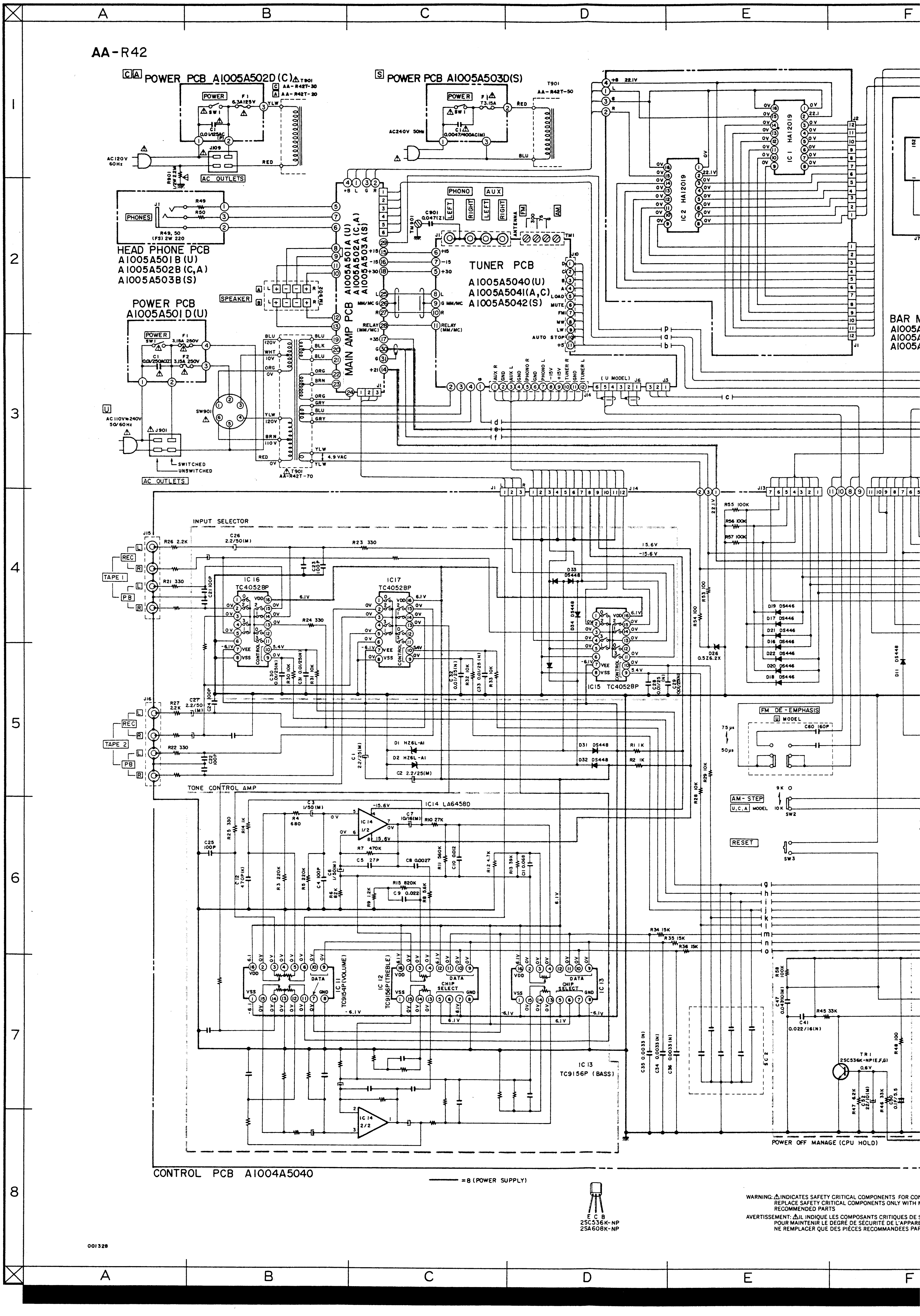

D S G
2SK19
D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571

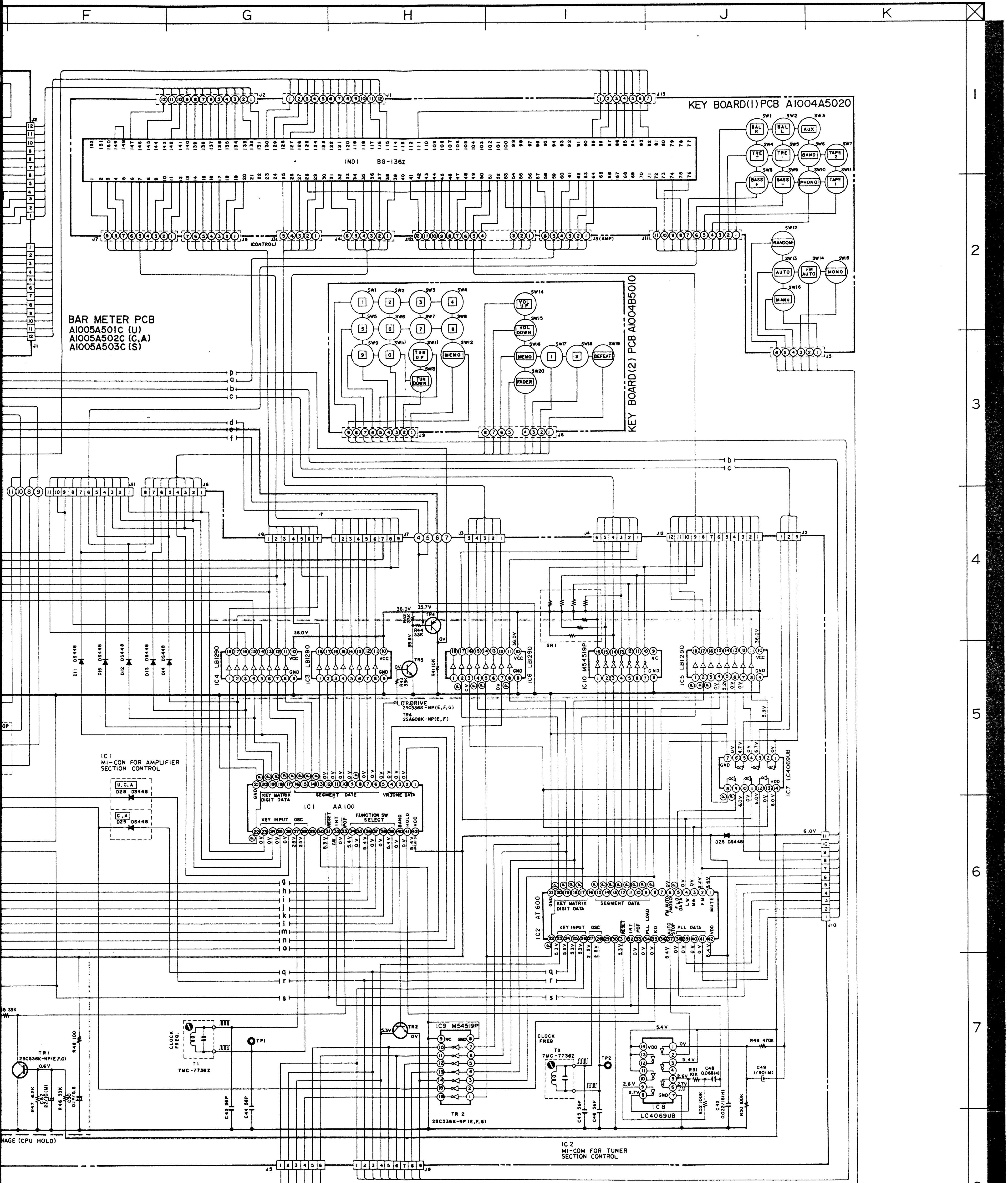
001327


F
G
H
I
J
K
1
2
3
4
5
6
7
8
(FM IF AMP, FILTER)
T1 119AC-15266X
FM SENS (FM IF)
FL1 SFE 10.7MM
FL2 SFE 10.7MA8
TR5 2SC3000(E,F)
IC1 (FM IF SYSTEM)
IC1 LA1231N
IF AMP/LIMITER (6 STAGE)
IF AMP MUTE
LEVEL DET (3 STAGE)
INVERTER
LEVEL DET
DC LEVEL DET
S METER DRIVE
MUTE DRIVE
VOLTAGE REG
QUADRATURE DET
MUTE CONTROL
AF AMP
AFC/T METER DRIVE
QUADRATURE LIMITER
T2 78 1049
CENTER VOLT
T3 78 1050
FM DISTORTION
TP8
TP7
TR3 2SK212(D,E)
TR4 2SC930(E,F)
(LOCAL OSC)
(AM/FM +B ON/OFF)
TR23 2SA608K-NP(E,F,G)
TR24, 25 2SC536K-NP(E,F,G)
(MUTE CONTROL)
TR7 2SC536K-NP(E,F,G)
TR6 2SC536K-NP(E,F,G)
(AUTO STOP)
TR8 2SC536K-NP(E,F,G)
MUTE (CONTROL)
IC2 LA3390
VCC
AM IN
FM IN
MUTE ON/OFF
FM/AM
Lch OUT
Rch OUT
19K ADJ
STEREO IND
GND
ST/MONO
FL3 42W 1001
STEREO SEPARATION
VR1 20KB
VR2 10KB
19KHz ADJ
TP9
TP2
(PLL FM MULTIPLEX STEREO DEMODULATOR)
(FM STEREO/MONO)
TR10 2SC536K-NP(E,F,G)
TR9 2SA608K-NP(E,F,G)
+B 13.8V
(PRE SCALER)
IC5 TD6102P
50KHz SHIFT
1/2
1/8, 1/4 CHANGE
FM, AM CHANGE
IC11 (PHONO EQ AMP)
IC11 M5218P-21
+VCC
-VCC
J14
AUX R
GND
AUX L
GND
PHONO R
GND
PHONO L
-15V
+15V
TUNER R
GND
TUNER L
CONTROL PCB
R215 (FS) 270
R216 (FS) 270
+15V
-15V
MAIN PCB
+5V
LOAD
A
B
C
D
AUTO STOP
LW
MW
FM
MUTE
CONTROL PCB
TUNE
STEREO
FM AUTO
CONTROL PCB
LEFT
RIGHT
LEFT
RIGHT
AUX
PHONO
J1
TM 901
2SD571
2SD313
E C B
B C E

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

(RECEIVER)
AA-R32L TUNER
SCHEMATIC DIAGRAM
NO.4-4 821032A


A
B
C
D
E
F
1
2
3
4
5
6
7
8
AA-R42
C A POWER PCB A1005A502D(C)
S POWER PCB A1005A503D(S)
HEAD PHONE PCB
A1005A501B(U)
A1005A502B(C,A)
A1005A503B(S)
POWER PCB
A1005A501D(U)
MAIN AMP PCB A1005A501A(U) A1005A502A(C,A) A1005A503A(S)
TUNER PCB
A1005A5040(U)
A1005A5041(A,C)
A1005A5042(S)
IC1 HA12019
IC2 HA12019
BAR M
A1005A
A1005A
A1005A
AC OUTLETS
SWITCHED
UNSWITCHED
INPUT SELECTOR
IC16 TC4052BP
IC17 TC4052BP
IC15 TC4052BP
TAPE 1
TAPE 2
REC
PB
TONE CONTROL AMP
IC14 LA6458D
IC11 TC9154P(VOLUME)
IC12 TC9156P(TREBLE)
IC13 TC9156P (BASS)
FM DE-EMPHASIS
AM-STEP
RESET
POWER OFF MANAGE (CPU HOLD)
CONTROL PCB A1004A5040
=B (POWER SUPPLY)
E C B
2SC536K-NP
2SA608K-NP
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CON
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH M
RECOMMENDED PARTS
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE S
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREI
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR
001328


F
G
H
I
J
K
1
2
3
4
5
6
7
8
KEY BOARD(1)PCB A1004A5020
BAL R
BAL L
AUX
TRE +
TRE -
BAND
TAPE 2
BASS +
BASS -
PHONO
TAPE 1
RANDOM
AUTO
FM AUTO
MONO
MANU
IND1 BG-136Z
J7
J8 (CONTROL)
J3
J4
J12
J3(AMP)
J11
J5
J1
J2
J13
BAR METER PCB
A1005A501C (U)
A1005A502C (C,A)
A1005A503C (S)
KEY BOARD(2) PCB A1004B5010
TUN UP
TUN DOWN
MEMO
VOL UP
VOL DOWN
FADER
DEFEAT
J9
J6
IC4 LB1290
IC3 LB1290
IC6 LB1290
IC10 M54519P
IC5 LB1290
FL(TR)DRIVE
2SC536K-NP(E,F,G)
TR4
2SA608K-NP(E,F)
IC1
MI-CON FOR AMPLIFIER
SECTION CONTROL
IC1 AA100
KEY MATRIX DIGIT DATA
SEGMENT DATE
VR,TONE DATA
KEY INPUT
OSC
FUNCTION SW SELECT
IC7 LC4069UB
D25 DS448
J10
IC2 AT600
KEY MATRIX DIGIT DATA
SEGMENT DATA
PLL DATA
CLOCK FREQ.
T1
7MC-7736Z
TP1
IC9 M54519P
TR2
2SC536K-NP (E,F,G)
CLOCK FREQ
T2
7MC-7736Z
TP2
IC8
LC4069UB
TR1
2SC536K-NP(E,F,G)
NAGE (CPU HOLD)
IC2
MI-COM FOR TUNER
SECTION CONTROL
J5
J9

ETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
ARTS

UE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL.
UEDES PIÈCES RECOMMANDÉES PAR LE FABRICANT

VOLTAGE MEASURED MODE:
AFTER DEPRESSING THE RESET BUTTON.
Ⓟ INDICATES THAT TIMING PLUSE WILL BE DISPLAYED

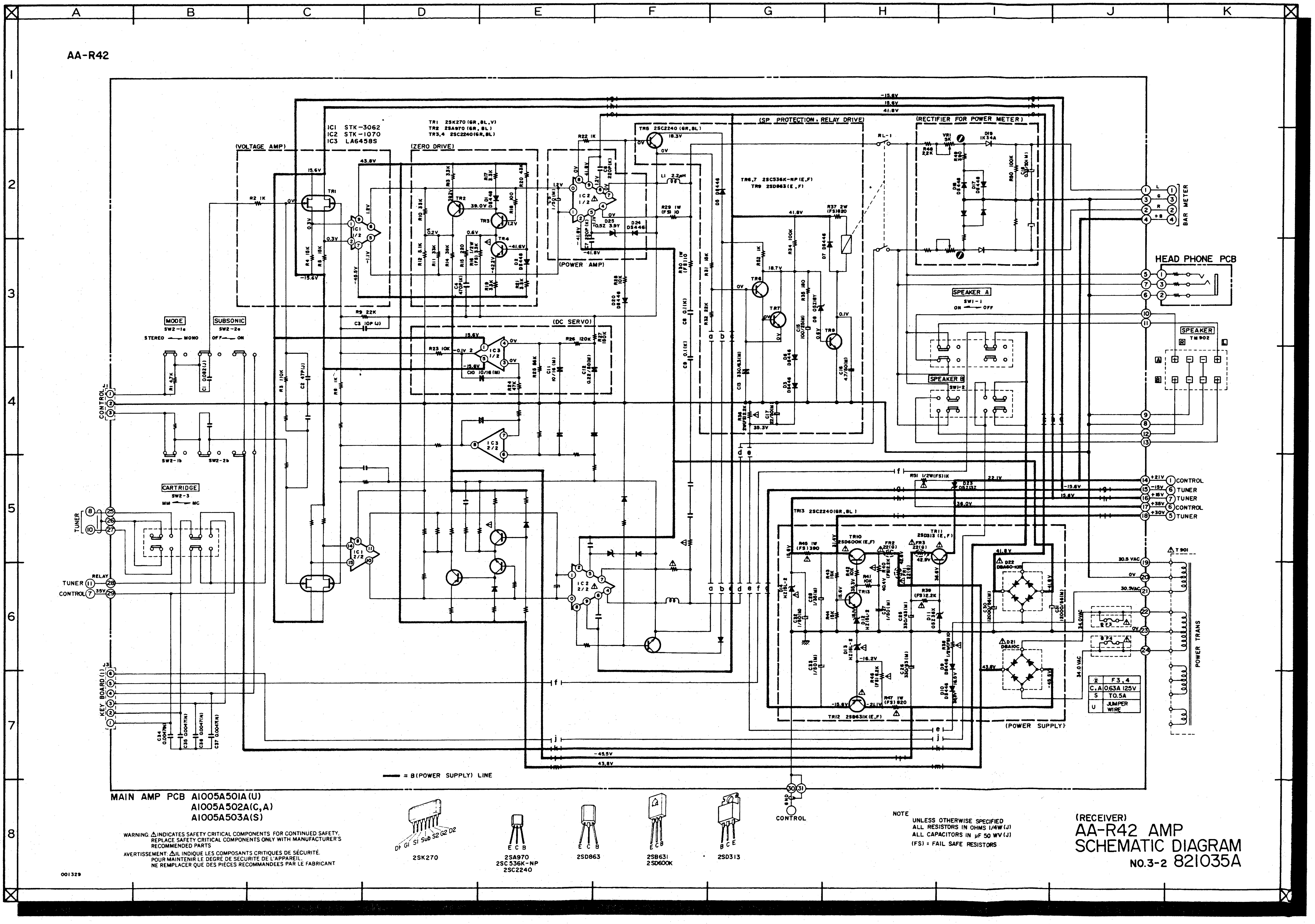
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)

(RECEIVER)

AA-R42 CONNECTION DIAGRAM

NO. 3-1 821034A

AA-R42


A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
IC1 STK-3062
IC2 STK-1070
IC3 LA6458S
TR1 2SK270 (GR, BL, V)
TR2 2SA970 (GR, BL)
TR3,4 2SC2240 (GR, BL)
TR5 2SC2240 (GR, BL)
TR6,7 2SC536K-NP (E,F)
TR9 2SD863 (E, F)
TR13 2SC2240 (GR, BL)
TR10 2SD600K (E,F)
TR11 2SD313 (E, F)
TR12 2SB631K (E,F)
(VOLTAGE AMP)
(ZERO DRIVE)
(POWER AMP)
(SP PROTECTION, RELAY DRIVE)
(RECTIFIER FOR POWER METER)
(DC SERVO)
(POWER SUPPLY)
MODE
SW2-1a
STEREO MONO
SUBSONIC
SW2-2a
OFF ON
SW2-1b
SW2-2b
CARTRIDGE
SW2-3
MM MC
CONTROL
TUNER
RELAY
KEY BOARD (1)
J3
BAR METER
HEAD PHONE PCB
SPEAKER A
SW1-1
ON OFF
SPEAKER B
SW1-2
SPEAKER
TM902
+21V CONTROL
-15V TUNER
+15V TUNER
+38V CONTROL
+30V TUNER
30.5 VAC
0V
30.5VAC
34.0VAC
34.0 VAC
T901
F3
F4
POWER TRANS
RL-1
-15.6V
15.6V
41.8V
43.8V
-45.5V
GND
CONTROL
= B(POWER SUPPLY) LINE
D1 G1 S1 Sub S2 G2 D2
2SK270
E C B
2SA970
2SC536K-NP
2SC2240
E C B
2SD863
E C B
2SB631
2SD600K
B C E
2SD313

※	F3, 4
C, A	0.63A 125V
S	T0.5A
U	JUMPER WIRE

MAIN AMP PCB A1005A501A(U)
A1005A502A(C, A)
A1005A503A(S)

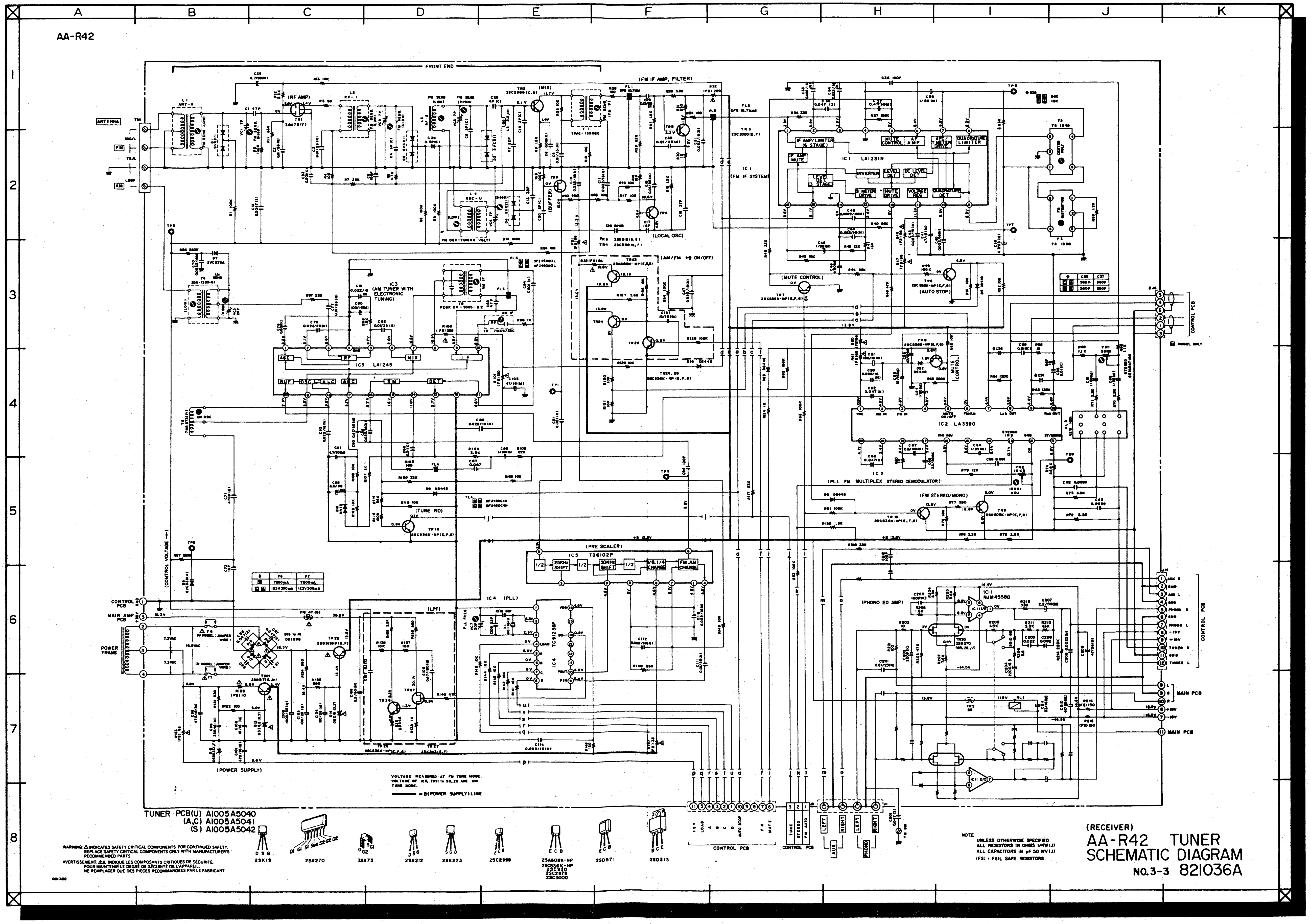
WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: △ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

001329

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50 WV (J)
(FS) = FAIL SAFE RESISTORS

(RECEIVER)
AA-R42 AMP SCHEMATIC DIAGRAM
NO.3-2 821035A


AA-R42
FRONT END
(FM IF AMP, FILTER)
ANTENNA
FM
AM
(RF AMP)
(MIX)
(BUFFER)
(LOCAL OSC)
IC1
(FM IF SYSTEM)
IF AMP/LIMITER (6 STAGE)
MUTE CONTROL
AF AMP
AFC/T.METER DRIVE
QUADRATURE LIMITER
IF AMP MUTE
IC1 LA1231N
INVERTER
LEVEL DET
DC LEVEL DET
S METER DRIVE
MUTE DRIVE
VOLTAGE REG
QUADRATURE DET
(MUTE CONTROL)
(AUTO STOP)
IC3 (AM TUNER WITH ELECTRONIC TUNING)
AGC
RF
MIX
IF
BUF
OSC
ALC
AFC
S.M
DET
IC3 LA1245
(AM/FM +B ON/OFF)
IC2 LA3390
IC2 (PLL FM MULTIPLEX STEREO DEMODULATOR)
(FM STEREO/MONO)
(TUNE IND)
(PRE SCALER)
IC5 TD6102P
1/2
25KHz SHIFT
30KHz SHIFT
1/8, 1/4 CHANGE
FM, AM CHANGE
IC4 (PLL)
IC4 TC9125BP
(LPF)
(PHONO EQ AMP)
IC11 NJM4558D
IC11 2/2
CONTROL PCB
MAIN AMP PCB
POWER TRANS
(POWER SUPPLY)
MAIN PCB
LEFT
RIGHT
AUX
PHONO
VOLTAGE MEASURED AT FM TUNE MODE.
VOLTAGE OF IC3, TR11 to 20,28 ARE MW TUNE MODE.
= B(POWER SUPPLY) LINE
D S G
2SK19
D1 G1 S1 Sub S2 G2 D2
2SK270
D G2 S G1
3SK73
D S G
2SK212
S G D
2SK223
E C B
2SC2999
E C B
2SA608K-NP
2SC536K-NP
2SC930
2SC2878
2SC3000
E C B
2SD571
B C E
2SD313
001330

TUNER PCB(U) A1005A5040
(A,C) A1005A5041
(S) A1005A5042

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

NOTE

UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50 WV (J)
(FS) = FAIL SAFE RESISTORS

(RECEIVER)
AA-R42 TUNER
SCHEMATIC DIAGRAM
NO.3-3 821036A